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Sydney Metro – Central Station Main Works
Groundwater Baseline Monitoring (September 2018 to February 2019) Report

1 Introduction

AGJV Pty Ltd (AGJV) was commissioned by Laing O'Rourke (LOR) to undertake a groundwater baseline monitoring program of selected groundwater wells at Central Station, as part of the Sydney Metro Central Station Main (CSM) works project.

LOR has identified three separate project work areas for the CSM project, these include:

- The Metro Station Box works
- The Central Walk East
- The Sydney Yard project access area

The approximate boundaries of the CSM project areas are presented in **Figure 1, Appendix A**.

A construction groundwater management plan (CGWMP) has been prepared for the CSM project and approved by the Natural Resources Access Regulator (NRAR). The CGWMP includes a groundwater baseline monitoring program to establish the pre-construction groundwater conditions. This report has been prepared to document the groundwater monitoring undertaken as part of the baseline groundwater monitoring program.

1.1 Objectives

The objectives of this groundwater baseline monitoring program are to:

1. Characterise the pre-construction baseline groundwater conditions including groundwater levels and groundwater quality within and surrounding the CSM project area.
2. Inform design decisions for the CSM infrastructure.
3. Comply with the groundwater monitoring program outlined in the CGWMP, which has been approved by Natural Resources Access Regulator (NRAR).

1.2 Scope of work

The scope of work completed by AGJV is summarised below:

- Gauging of 15 monitoring wells on a monthly basis for six months. Constraints encountered, with regards to well access, during the monitoring program are discussed in **Section 1.3**.
- Installation of data loggers in five selected existing wells (SRT_BH039, SRT_BH047, SRT_BH063 and SRT_CBH017) to record ongoing groundwater levels.
- Collection and analysis of groundwater samples from the monitoring wells on a monthly basis for six months.
- Submission of groundwater samples to NATA accredited laboratories for chemical analysis for a range of chemicals of potential concern (COPC) including: heavy metals; benzene, toluene, ethylbenzene and xylene (BTEX); total recoverable hydrocarbons (TRH); polycyclic aromatic hydrocarbons (PAH); phenols; organochlorine pesticides (OCP); organophosphorus pesticides (OPP); polychlorinated biphenyl (PCB); cyanide; ammonia; and major anions/cations (chloride, sulfate, ammonia, nitrate, sodium, calcium, potassium and magnesium). From October 2018, groundwater samples were also analysed for ferrous iron and manganese to assess precipitation.
- Preparation of this baseline letter report.

During the monitoring period, a number of constraints were encountered in relation to availability, access and condition of monitoring wells. AGJV has worked within these constraints to collect as much data as possible during the monitoring period. The status of monitoring wells at the time of each groundwater monitoring event is summarised in **Table B1, Appendix B**.

1.3 Limitations

AGJV's limitations to the assessment are provided in **Section 8**. Other exceptions to the scope of work that were encountered during the six months of monitoring included the following:

- Groundwater wells SRT_BH006, SRT_BH006A and SRT_BH084 within Sydney Yard were not sampled in all monitoring rounds due to construction activities preventing access and/or because they could not be found (suspected of being destroyed).
- Groundwater well SRT_BH055 within Suburban Platform 20/21 was not sampled as it was dry at the time of sampling.
- Groundwater well SRT_BH052 within Intercity Platforms 8/9 was not sampled due to access restrictions during renovation works prior to October 2018. SRT_BH052 was sampled in subsequent rounds between October 2018 and February 2019.
- Groundwater wells SRT_BH064, SRT_BH081 and SRT_CBH007 within Sydney Yard and Intercity Platform 14/15 were not sampled from October 2018 onwards due to the wells being destroyed as part of construction works.
- Groundwater wells SRT_BH039 and SRT_BH053 within Track 15 and Intercity Platform 12/13 were not sampled from November 2018 onwards due to the wells being destroyed as part of construction works.
- Groundwater wells SRT_BH048, SRT_BH053, SRT_BH082 and SRT_CBH001 within Sydney Yard and Intercity Platforms 12/13 were not sampled from December 2018 onwards due to the wells being destroyed as part of construction works.

Table 1 in Appendix B presents the status of the monitoring wells included in the baseline monitoring program. The table indicates that the number of functioning groundwater monitoring wells has been reduced more than 50% since round 4 (December 2018). Further to this, an additional two deep groundwater monitoring wells have been destroyed and have not been available since round 3 (November 2018). Decommissioning of these wells were needed to allow the construction of the metro box to proceed Additional monitoring wells (i.e. four deep ones and two shallow ones were installed between January 2019 and March 2019 have been included in the ongoing groundwater monitoring program.

2 History of Central Station and potential source of impact

Central Station has been used as railway infrastructure (i.e. station platforms and railway corridors) for over 70 years (since the 1930's). The surrounding areas have been used for mixed commercial, industrial (i.e. ex-railway gasworks) and residential. A tunnel and a station box were built for eastern suburban trains in 1979 and are known as platforms 24 and 25.

A Golder Associates / Douglas Partners (2017b)[1] report made reference to a site history of ex-railway gasworks at Sydney Yard by Rail Services Australia (RSA) in 2000. Three gasworks were reported to have been in operation between 1878 and 1905. The probable locations of the gasworks are presented in **Figure 1, Appendix A**.

Based on historical and current site activities the following potential sources of impact have been identified:

- Onsite activities associated with railway use, which includes fill beneath platforms and ballast as fill along the rail lines.
- Historical gas works activities in the close proximity to the south of the Central Station platforms.
- Leaks and spills from fuel storage and infrastructure from a service station situated on Regent Street.

2.1 Potential contaminants of concern

Given sources of potential impact and the results of previous investigation the following chemicals are considered to be the primary contaminants of concern:

- Hydrocarbons including total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylene (BTEX), Polycyclic aromatic hydrocarbons (PAH), phenols and volatile organic compounds (VOC)
- Heavy metals
- Organochlorine pesticides (OCP), Organophosphorus pesticides (OPP) and Polychlorinated biphenyls (PCB).
- Cyanide
- Nutrients including ammonia, sulphate and sulphide.

[1] Golder Associates / Douglas Partners (2017) Targeted Environmental Site Assessment – Central Station Gasworks Site

The adopted health and/or environmental assessment criteria selected for these chemicals are discussed below in **Section 3**.

In addition to the monitoring for the presence of groundwater contamination, the groundwater baseline monitoring results have also been used for assessment of the groundwater aggressivity and iron / manganese precipitation.

3 Basis for assessment

3.1 Relevant guidelines for contamination assessment

The framework for the contamination assessment made herein, was developed in accordance with guidelines "made or approved", by the NSW EPA under Section 105 of the *Contaminated Land Management Act, 1997*. These guidelines include, but are not limited to the following:

- Office of Environment and Heritage (2011) Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites.
- NEPM (2013) National Environment Protection (Assessment of Site Contamination) Amendment Measure (No.1), National Environment Protection Council (NEPC).
- NSW EPA (2015) Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997.
- ANZECC/ARMCANZ (2000) Australian and Zealand Guidelines for Fresh and Marine Water Quality.
- NHMRC (2008) Guidelines for Managing Risks in Recreational Water.

3.2 Onsite human health screening levels

The NEPM HSLs for petroleum hydrocarbons for commercial / industrial land use have been adopted for the initial assessment of groundwater to characterise the risk posed to CSM construction workers and future metro infrastructure users and operation / maintenance workers by potential hydrocarbon vapour intrusion. AGJV noted that the NEMP HSL is more stringent than other published screen values for petroleum hydrocarbons (i.e. CRC CARE guidelines for intrusive maintenance workers via vapour intrusion and direct contact pathways).

Recreational criteria have been used as a conservative screening tool direct contact by intrusive maintenance workers on site coming into contact with groundwater. This is discussed in more detail below.

3.3 Offsite human health

No potable water abstractions have been identified in hydraulic connection with groundwater beneath the CSM and the area is supplied by reticulated town water supplies. Therefore, the Australian Drinking Water Guidelines (ADWG) have not been adopted for this assessment.

The nearest receptor (Cockle Bay/Blackwattle bay) is approximately 1,000 m away and groundwater (if contaminated) would be considered likely to attenuate across this distance, however there is the potential for groundwater to be discharged into this receptor during dewatering activities. These water bodies are expected to be associated with recreational boating and potentially fishing only. Diving or swimming is not expected to occur. As such, the guidelines for recreational water quality in National Health and Medical Research Council (NHMRC) 2008 have been adopted for this assessment.

These guidelines are associated with incidental ingestion of water and area generally based on incidental consumption of 200 ml of impacted water per day as opposed to 2 Litres per day which the GILs for drinking water are based on. On this basis they are expected to be more representative of the type of exposure that will occur to construction and maintenance workers during construction and operation of the project and have been adopted as screening criteria for this exposure pathway. Commercial users of the metro/commuters will not come into contact with the groundwater.

3.4 Ecological criteria

Based on the site hydrogeology**,** it has been assumed for this assessment that groundwater in the area has potential to discharge to the nearest aquatic systems of Cockle Bay and/or Blackwattle Bay approximately 1 km away. As such, the assessment criteria nominated for this assessment are the NEPM Groundwater Investigation Levels (GIL) for protection of marine water ecosystems.

For assessment of pH values in groundwater, trigger value for pH for estuaries in NSW in ANZECC/ARMCANZ volume 2 (Table 8.2.8) has been adopted. The values for estuaries were adopted as this was considered to be most representative of the environment receiving water from the site.

3.5 Trade waste criteria

To evaluate the groundwater disposal option during the construction phase of the metro infrastructure, the groundwater analytical results have also been compared to Sydney Water's Trade Waste Acceptance Standards 2018-19 (Sydney Water June 2018). However AGJV understood that a trade waste agreement with Sydney Water was not approved due to capacity limitations in the Sydney Water sewer system.

3.6 Aggressivity assessment criteria

The exposure classification criteria for concrete piles and steel piles presented in Australian Standard AS 2159-2009 *Piling – Design and installation* have been selected for assessing aggressivity of the groundwater.

3.7 Ochre potential assessment criteria

The criteria adopted for the assessment of ochre formation were based on Stuyt et. al 2005[2] and focused on ferrous iron concentrations in groundwater. These criteria include:

- Ferrous iron concentrations less than 1 mg/L indicate that ochre formation potential is negligible
- Ferrous iron concentrations between 1 and 5 mg/L indicate that ochre formation potential is small
- Ferrous iron concentrations between 5 and 10 mg/L indicate that ochre formation potential is moderate
- Ferrous iron concentrations between 10 and 25 mg/L indicate that ochre formation potential is high
- Ferrous iron concentrations more than 25 mg/L indicate that ochre formation potential is very high

[2] Stuyt L.C.PM, Dierickx W., and Martinez Beltran J., 2005, Material for Subsurface Land Drainage Systems, FAO Irrigation and Drainage Paper 60 Rev. 1.

4 Field investigation

4.1 Dates of groundwater sampling Groundwater sampling methodology

Groundwater sampling was conducted on accessible groundwater monitoring wells on the following dates:

- Round 1 – 6 to 7 September 2018
- Round 2 – 25 to 26 October 2018
- Round 3 – 26 to 27 November 2018
- Round 4 – 17 to 18 December 2018
- Round 5 – 17 to 18 January 2019
- Round 6 – 20 to 21 February 2019

4.2 Groundwater level gauging and monitoring methodology

The method used to gauge the monitoring wells is described below:

- Prior to gauging the water level (SWL), each monitoring well was left to stand for a few minutes to stabilise with atmospheric conditions.
- The depth of the SWL and NAPL, if present, was measured at each monitoring well using an electronic interface meter, along with the total well depth with all measurements recorded from the top of the well casing.

In addition, groundwater level data loggers were placed in the following monitoring wells:

- SRT_BH039, a deep well which was destroyed following the first two monitoring events (the data logger was not able to be retrieved).
- SRT_BH047, a shallow monitoring well on platforms 6/7.
- SRT_BH063, an offsite deep monitoring well on Randle Street.
- SRT_BH064, a shallow monitoring well in Sydney Yard, which was destroyed following the first monitoring event (the data logger was not able to be retrieved).
- SRT_CBH017, a shallow monitoring well on platforms 20/21.

Therefore there were only three data loggers that recorded groundwater levels (SRT_BH047, SRT_BH063 and SRT_SRT_CBH017) across the entire monitoring period. The groundwater levels at these three monitoring wells are graphed in Appendix D.

4.3 Groundwater sampling methodology

The methodology used to sample the groundwater wells is described below:

- Prior to gauging the standing water level (SWL) in each monitoring well the SWL was allowed to stabilise for a few minutes under atmospheric conditions.

- The depth of the SWL and NAPL, if present, was measured at each monitoring well using an electronic interface meter, along with the total well depth with all measurements recorded from the top of casing.
- Representative groundwater samples were collected from the monitoring wells using the following sampling techniques:
  - Each well was purged using low-flow sampling techniques (peristaltic pump or low-flow bladder pump, whichever was more appropriate) with dedicated low-density polyethylene (LDPE) tubing that is Teflon free. The pump inlet tube was placed consistently in the well screen at each location and was recorded.
  - Field parameters (pH, electrical conductivity (EC), oxygen redox potential, dissolved oxygen (DO) and temperature) were measured and recorded during purging to ensure that extracted groundwater was representative of the surrounding groundwater conditions. When field parameters reached equilibrium, i.e. consecutive measurements are within 10% of each other for EC, redox and pH, the groundwater was deemed to be representative and groundwater samples were collected.
  - Visual observations were recorded, in particular, the absence or presence of a hydrocarbon sheen or odour were recorded during purging.
  - Retrieved groundwater samples were immediately placed into laboratory prepared bottles suitable for the requested analyses.
  - Sample bottles were filled directly from the pump with a minimal amount of air contact and vials for volatile organic analysis were filled to minimise headspace. Samples that were to be analysed for dissolved metals were field filtered with a dedicated filter prior to placing the sample into the sample bottle.
  - The containers were labelled with the project number, sample identification, date collected and sampler's initials.
  - Following the collection of each sample, the bottles were placed immediately into ice-filled coolers for preservation prior to and during transportation to the project laboratories.
  - Samples were accompanied with chain of custody documentation to the project laboratory and were submitted within holding times appropriate for the analysis required.
  - Dedicated sampling equipment (i.e. tubing, bailers, filters etc.) was disposed of after each well was sampled with any reusable sampling equipment decontaminated using a mixture of phosphorus free detergent solution and potable water and then rinsed with potable tap water between each sampling location.

Calibration certificates for equipment including the interface probe and water quality meter are supplied in **Appendix C**. Groundwater purging sheets documenting the sampling procedure at each groundwater well are included in **Appendix D**.

4.4 Groundwater analysis

The analytical schedule for groundwater is presented in **Table 4, Appendix B**. In summary the groundwater samples were analysed as follows:

- Groundwater samples were submitted for laboratory analysis of COPC including, eight (8) heavy metals, TRH, TRH with silica gel clean up, BTEX, PAH, phenols, OCP, OPP, PCB, cyanide, ammonia, anions and cations.
- Field intra and inter-laboratory duplicate samples were collected and submitted for laboratory analysis including eight (8) heavy metals, TRH, BTEX and PAH for each of the monitoring events.
- Trip blanks and trip spike samples were submitted with each batch of samples, and were analysed for BTEX and volatile TRH.
- Rinsate samples were collected one per sampling round with reusable equipment and were analysed for eight (8) heavy metals.

Analysis of groundwater samples were undertaken by NATA accredited laboratories for the required analysis.

5 Monitoring results

5.1 Field observations

During sampling, no olfactory or visual contamination (such as sheen and odours) was observed. The groundwater purging sheets are included in **Appendix E**.

5.2 Groundwater levels and trends

5.2.1 Gauging results

The groundwater gauging data is presented in **Table 2** of **Appendix B**.

The depth to groundwater in the shallow groundwater aquifer ranged between 2.85 metres below the top of the well casing (mbtoc) and 6.25 mbtoc over the monitoring period.

The groundwater elevations of the shallow aquifer ranged between 15.155 m AHD at SRT_CBH001 (September 2018) and 19.974 m AHD at SRT_CBH017 (December 2018). The fluctuation in manual groundwater elevations in each well over the monitoring period ranged between 0.092 m at SRT_CBH017 and 1.25 m at SRT_BH047.

The inferred shallow aquifer groundwater flow direction (using October 2018 monitoring data) is presented in **Figure 2** of **Appendix A** and is broadly to the west.

The groundwater level in the deeper sandstone aquifer was only observed at one onsite monitoring well (SRT_BH039) on two occasions in September 2018 and October 2018 (the well was destroyed following the October 2018 monitoring event), but was observed at offsite well SRT_BH063 over the entire monitoring period.

The depth to groundwater in the deeper groundwater system ranged between 10.67 mbtoc in SRT_BH063 (located offsite and to the east of the Eastern Suburb Railway Tunnel) and 17.09 mbtoc at SRT_BH039.

The groundwater elevations in SRT_BH039 were 3.082 m AHD and 3.853 m AHD in September 2018 and October 2018 respectively, which is at least 11 metres below the groundwater level in the shallow aquifer system.

The groundwater elevation in offsite monitoring well SRT_BH063 ranged between 14.52 m AHD and 16.695 m AHD, which is more than 10 m higher than those observed on site at SRT_BH039

Given the limited data for the deep sandstone aquifer, it is not possible to estimate the inferred groundwater flow direction.

5.2.2 Data loggers

The groundwater levels recorded by groundwater data loggers are presented with the daily rainfall data from Bureau of Meteorology Sydney Botanic Gardens weather station (066006) in **Appendix D**. The rapid decline and recovery in groundwater elevations at the time of manual gauging are associated with groundwater sampling works and do not reflect the background groundwater conditions.

The groundwater levels at SRT_BH047 generally ranged between 16 m AHD and 18 m AHD (excluding sampling response). The groundwater levels at SRT_CBH017 generally ranged between 19.7 m AHD and 20.30 m AHD (excluding sampling response). The groundwater levels at the offsite deep well SRT_BH063 generally ranged between 14.5 m AHD and 15 m AHD (excluding sampling response).

The groundwater levels in onsite shallow wells SRT_BH047 and SRT_CBH017 have a clear response to rainfall while the deeper well SRT_BH063 has a more subdued response. There is no apparent trend of increasing or decreasing groundwater elevations over the monitoring period.

5.3 Field measured groundwater quality parameters

The field measured groundwater quality parameters are summarised in **Table 3** of **Appendix B**. The field purging sheets are included in **Appendix D**.

The measured temperature, electrical conductivity and pH were relatively consistent across the monitoring period. It is noted that the dissolved oxygen observations fluctuated and were relatively high at some locations (i.e. SRT_BH047). Oxygen reduction potential was also variable between sampling events as most wells.

The pH ranged between 5.02 at SRT_CBH001 (September 2018) and 9.81 at SRT_BH064 (September 2018) in the shallow aquifer system with the majority of wells being slightly acidic (e.g. a pH of below 7). AGJV note that the field measured pH values are generally outside the trigger value range (7-8.5) for estuaries in NSW.

The deeper wells screened within bedrock (SRT_BH063 and SRT_BH039) had observed pH ranging between 6.5 (SRT_BH063) and 12.07 (SRT_BH039). The higher pH in SRT_BH039 appears anomalous and may be due to leakage of grout down the annulus during installation of the well.

The electrical conductivity (EC) at all locations was generally indicative of fresh water except at SRT_BH039 (3,114 µS/cm to 4,286 µS/cm), which was slightly brackish.

5.4 Laboratory analytical results

The results have been discussed separately relative to the adopted criteria in the following sections. The laboratory results are presented in **Table 4** of **Appendix B** and the laboratory reports are provided in **Appendix F**.

5.4.1 Human health and ecological screening criteria

Heavy Metals

The heavy metal analytical results are discussed in the following:

- Arsenic: The majority of the groundwater samples had reported concentrations below the laboratory reporting limit. The maximum reported concentration was 0.005 mg/L. All samples had reported concentrations below the adopted offsite human health and ecological screening criterion.
- Cadmium: The majority of the groundwater samples had reported concentrations below the laboratory reporting limit. The maximum reported concentration was 0.0002 mg/L. All samples had reported concentrations below the adopted offsite human health and ecological screening criterion.
- Chromium: The majority of the groundwater samples had reported concentrations below the laboratory reporting limit. The maximum reported concentration was 0.003 mg/L. All samples had reported concentrations below the adopted offsite human health and ecological screening criterion.
- Copper: The majority of the groundwater samples had reported concentrations above the adopted offsite ecological screening criterion but below the adopted offsite human health screening criterion. The maximum reported concentration was 0.36 mg/L.
- Lead: Exceedances of the offsite ecological screening criterion were reported at SRT_BH048, SRT_BH052, SRT_BH053, SRT_BH082 (QA sample), SRT_CBH007, SRT_CBH017 and upgradient location SRT_BH063. Lead concentrations at other monitoring locations were below the adopted screening criteria.
- Mercury: All of the groundwater samples had reported concentrations below the laboratory reporting limit and below the adopted offsite human health and ecological screening criterion.
- Nickel: Exceedances of the offsite ecological screening criterion was reported at SRT_BH048, SRT_BH052, SRT_BH053, SRT_BH059, SRT_BH082 (QA sample), SRT_CBH001, SRT_CBH007, SRT_CBH015, SRT_CBH017 and offsite location SRT_BH063. Nickel concentrations at other monitoring locations were below the adopted screening criteria.
- Zinc: The majority of the groundwater samples had reported concentrations above the adopted offsite ecological screening criterion but below the adopted offsite human health screening criterion. The maximum reported concentration was 0.48 mg/L.

Cyanide

Cyanide exceeded the adopted offsite ecological screening criterion of 0.004 mg/L in nine samples, with the highest concentration of 0.028 mg/L in SRT_BH064 (6/9/2018). SRT_BH064 was located within SYPAA and destroyed following the first monitoring event in September 2018.

TRH, BTEX and PAH

The samples submitted for analysis reported concentrations below the adopted screening levels for human health (i.e. onsite vapour intrusion and offsite recreational) and protection of marine aquatic ecosystems. However detection of BTEX and TRH was noted at the following locations:

- Benzene at SRT_BH064 at 3 µg/L
- Toluene at SRT_BH047, SRT_BH052, SRT_BH059 and SRT_CBH015 at 2 µg/L

- Heavier TRH fractions were reported in groundwater samples collected at SRT_BH047, SRT_BH059, SRT_BH063, SRT_CBH001, The highest TRH F2 concentration was 3,100 mg/L at SRT_BH059. It is noted that three of the five samples reported heavier TRH fractions were in November 2018 sampling event. Silica gel clean-up was undertaken on these samples, with reported concentrations below or equal to the laboratory reporting limit. This indicates that these concentrations may be associated with the presence of organic matter in the samples.

Phenols, OCP, OPP and PCB

The samples submitted for analysis had reported concentrations below the laboratory detection limit, although it is noted that the laboratory detection limit for endrin and chlorpyrifos was above the adopted screening levels for the protection of marine aquatic ecosystems. Trace analysis with a lower limit of laboratory reporting should be undertaken for these analytes in future.

Ammonia

The majority of samples submitted for analysis had reported concentrations below the laboratory detection limit (0.01 mg/L) and GIL for marine water. However ammonia was reported at deep monitoring well BH039 of both September and October 2018 monitoring events at concentrations of 0.7 and 1 mg/L, respectively. The concentration of ammonia reported in October 2018 event exceeded the GIL for marine water. BH039 was destroyed following October 2018 event.

5.4.2 Aggressivity

Concentrations of sulfate, chloride and pH have been compared against the adopted aggressivity criteria in **Table 7** and **Table 8** of **Appendix B**. The results suggest that existing groundwater may present a mild risk to concrete structures intersecting groundwater. The reported groundwater quality is not expected to be aggressive to steel piles.

5.4.3 Precipitation (Formation of Ochre)

Ferrous iron and manganese was intermittently analysed in groundwater samples collected between October 2018 and February 2019. The ferrous iron results are included in **Table 4** of **Appendix B**.

The majority of the samples had reported ferrous iron concentrations below the laboratory reporting limits (0.05 mg /L), with the maximum reported concentration being 0.8 mg/L at SRT_BH059. Comparison of the results against the criteria adopted for ochre formation suggests that there is a negligible potential for ochre formation. It is noted however, that limited samples have been collected from the bedrock where this issue is expected to be most prominent.

The manganese concentrations ranged from less than the laboratory reporting limit (0.005 mg/L) to 6.6 mg/L.

5.4.4 Sydney Water trade waste acceptance standards

The groundwater laboratory results have been assessed against the Sydney Water trade waste criteria in **Table 4** of **Appendix B**.

The Sydney Water trade waste acceptance standards also have a standard for pH of between 7-10 pH units. Comparison of the field pH results presented in **Table 3** of **Appendix B** against the pH acceptance standard suggests that existing groundwater beneath the site is commonly below the

standard. For example, there were nine monitoring wells with values below the acceptance standard, with the lowest detected pH of 5.02 being observed in SRT_CBH001 (6/9/2018).

The highest pH of 12.07 observed in SRT_BH039 (26/10/2018) is also above the pH acceptance standard but appears anomalous and may be associated with grout impacts.

Due to the slightly acidic groundwater conditions at the site, neutralisation may be required if groundwater is discharged into Sydney Water's wastewater system during the construction of the metro infrastructure (i.e. from dewatering).

The analysis undertaken did not account of all analytes on the analytical suite required for discharge to Sydney Water trade waste (i.e. BOD and suspended solids). This analysis would require consideration as part of obtaining approval from Sydney Water to discharge groundwater into Sydney Water's wastewater system.

6 Quality assurance and quality control results

6.1 Field program

As part of the AGJV QA/QC programme, one intra-laboratory and one inter-laboratory duplicate sample was analysed during each monitoring event. Concentrations were reported for heavy metals, TRH, BTEX and PAH, however some results reported concentrations below the limit of laboratory reporting and as a result, it was not possible to calculate a RPD for these samples. For analytes with detected concentrations reported, RPDs were within the acceptable range, with the exception of exceedances shown in **Table 5, Appendix B**.

It is noted the elevated RPD between primary samples and field duplicates for metals specifically copper and zinc. The laboratory duplicates did have RPDs outside of the acceptance criteria indicating that it was field derived variability not associated with the laboratory. AGJV reviewed the field procedures for sampling and didn't identify discrepancies. AGJV will evaluate the RPD between primary and duplicate samples in future monitoring events.

One rinsate sample was collected during each monitoring round and analysed for heavy metals. Concentrations from the rinsate sample were reported below the laboratory limit of reporting (LOR) indicating that cross contamination of samples did not occur.

One set of water trip blank and trip spikes were analysed as part of each monitoring round of the investigation. The results of the trip spike were within the acceptable criteria, therefore it is considered unlikely that an unacceptable loss of volatile contaminants would have occurred. Concentrations from the trip blank samples were reported below the laboratory LOR, therefore it is considered unlikely that cross-contamination of samples or loss of volatiles occurred during transportation to the laboratory.

6.2 Laboratory program

Holding times

All analytes were extracted within the laboratory's technical holding times.

Laboratory program

The NATA certified laboratories used for this assessment (Eurofins MGT Sydney and Australian Laboratory Services) undertook their own quality assurance and quality control procedures for sample analysis. AGJV has reviewed the internal laboratory control data provided within the laboratory reports, which are attached as **Appendix F**.

Method blank results were less than the PQL, and surrogate spike and laboratory control sample recoveries were within laboratory acceptance criteria.

6.3 Discussion

Despite the elevated RPD of primary and duplicate samples for some metal analytes, the results of the QA/QC programme are considered to provide an acceptable degree of confidence in the analytical program completed. Overall, the analytical data set is considered to be valid and acceptable to base conclusions on the contamination status of the site, although there appears to be inherent field variability in the metals results that could affect the resolution (potential type a or type b errors) of small exceedances of the adopted ecological criteria.

7 Findings and conclusions

7.1 Findings

In accordance with the objectives detailed in **Section 1.2**, and based on the information contained within this monitoring program, the following findings are found from the completed groundwater monitoring (subject to the limitations outlined in **Section 8**):

- The groundwater levels of the shallow aquifer ranged between 15.155 m AHD at SRT_CBH001 (September 2018) and 19.974 m AHD at SRT_CBH017 (December 2018).
- The groundwater elevation of the deep aquifer was only obtained from one onsite monitoring well SRT_BH039 for two months which was destroyed following the October 2018 monitoring event. The groundwater elevations were 3.082 m AHD and 3.853 m AHD respectively in September and October 2018. Given the limited data point, it is not possible to estimate the inferred groundwater flow direction.
- The groundwater elevations at SRT_BH047 based on data logger ranged between 14 m AHD and 17.81 m AHD. The groundwater elevations at SRT_CBH017 ranged between 18.35 m AHD and 20.30 m AHD. The groundwater levels at offsite deep well SRT_BH063 ranged between 12.22 and 14.98 m AHD.
- The groundwater levels in onsite shallow wells SRT_BH047 and SRT_CBH017 have a clear response to rainfall while the deeper well SRT_BH063 has a more subdued response. There is no apparent trend of increasing or decreasing groundwater elevations over the monitoring period.
- No exceedance of onsite human health (vapour intrusion) and offsite human health (recreational water) criteria were reported in groundwater samples.
- Exceedances of screening criteria for protection of marine aquatic ecosystems were reported in most of the groundwater samples. These exceedances included cyanide and heavy metals (copper, lead, nickel and zinc). The reported heavy metal concentrations in groundwater are expected to represent

background concentrations. Metals concentrations in run off are expected to be elevated in the Sydney CBD urban environment. The reported cyanide concentrations in groundwater are likely associated with former gasworks sites within the Central Station. The RPD result however, suggest that there is some inherent variability in the sampling results which maybe affecting the resolution of metals exceedances.

- Exceedance of screening criterion for protection of marine aquatic ecosystems was reported at deep monitoring well location BH039 for ammonia, which reported a concentration of 1 mg/L during the October 2018 event.
- Benzene, toluene and heavier TRH fractions were reported in groundwater samples, however these concentrations were below the adopted screening criteria.
- The field measured pH values of groundwater were generally outside the trigger value range for estuaries in NSW (7-8.5). The field measured pH values were also outside the Sydney Water's trade waste acceptance standards.
- Concentrations of COPC in all the groundwater wells appear generally stable between monitoring rounds. Fluctuation for heavy metals (copper and zinc) and petroleum hydrocarbons were observed (silica-gel clean-up resolved this issues).
- The existing groundwater may present a mild risk to concrete structures intersecting groundwater. The existing groundwater is not aggressive for steel piles.
- The ochre potential is considered negligible given the low ferrous iron concentration (less than 1 mg/L), although the deeper sandstone aquifer where this issue is prominent has limited information. Further characterisation of the deeper aquifer will occur in following rounds as deeper wells currently being installed are incorporated into the monitoring program.

Based on the above findings, the water generated from construction dewatering should be treated prior to discharge into the stormwater system that discharges into the nearest surface water bodies approximately 1 km away. The expected analytes requiring treatment before disposal are:

- Copper
- Lead
- Nickel
- Zinc
- Cyanide
- Ammonia

8 Limitations

This report: has been prepared by AGJV for Laing O'Rourke and may only be used and relied on by Laing O'Rourke for the purpose agreed between AGJV and the Laing O'Rourke as set out in section 1.2 of this report.

AGJV otherwise disclaims responsibility to any person other than Laing O'Rourke arising in connection with this report. AGJV also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by AGJV in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. AGJV has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by AGJV described in this report. AGJV disclaims liability arising from any of the assumptions being incorrect.

AGJV has prepared this report on the basis of information provided by Laing O'Rourke and others who provided information to AGJV (including Government authorities)], which AGJV has not independently verified or checked beyond the agreed scope of work. AGJV does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this report.

Site conditions (including the presence of hazardous substances and/or site contamination) may change after the date of this Report. AGJV does not accept responsibility arising from, or in connection with, any change to the site conditions. AGJV is also not responsible for updating this report if the site conditions change.

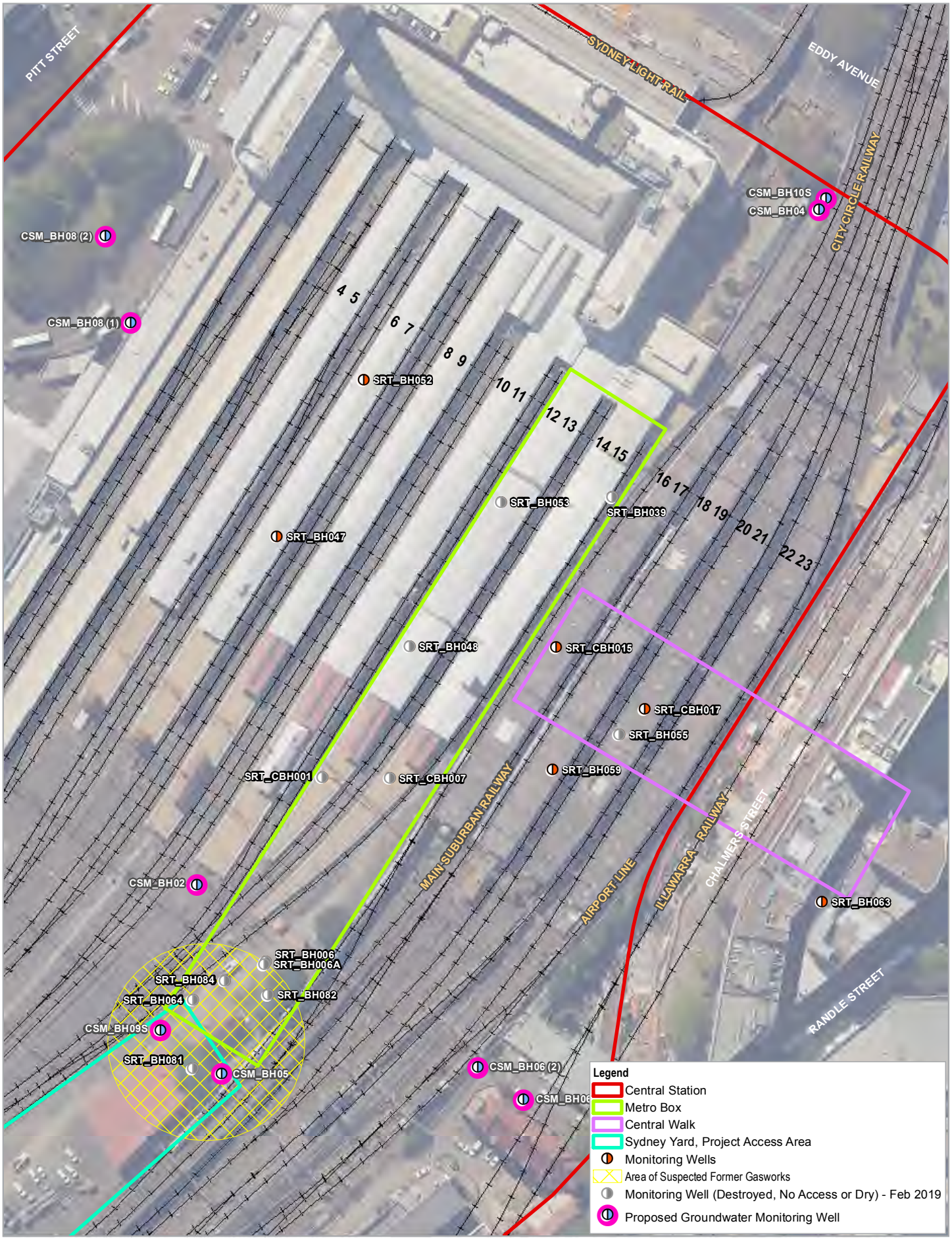
Sincerely
AGJV Pty Ltd

Terry Nham
Environmental Scientist

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Senior Environmental Engineer

Stefan Charteris
Technical Director

Appendix A Figures



Paper Size ISO A4

0 10 20 30 40

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

AGJV

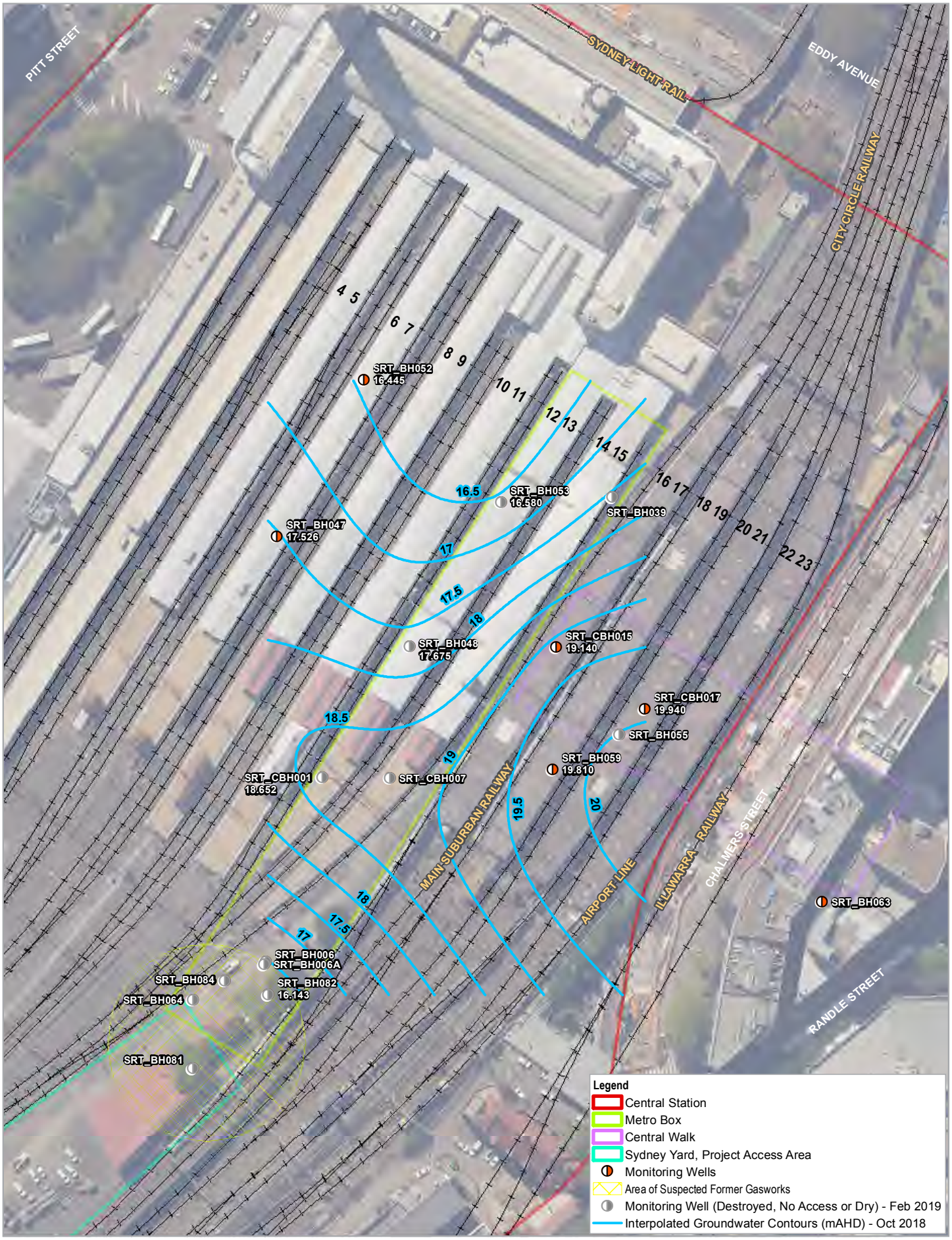
Laing O'Rourke
Central Station Main Works

Project No. **21-27234**
Revision No. **-**
Date **01/04/2019**

Monitoring Well Locations

Figure 1

Data source: © Department of Finance, Services & Innovation 2017. Created by: tnham



Paper Size ISO A4

0 10 20 30 40

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

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Laing O'Rourke
Central Station Main Works

Interpolated Groundwater Contours - October 2018 (Shallow Aquifer)

Project No. **21-27234**
Revision No. **-**
Date **22/03/2019**

Figure 2

Data source: © Department of Finance, Services & Innovation 2017. Created by: tnham

Appendix B Tables

Appendix B

Table 1 Summary of monitoring well status during monitoring program

Well ID	Approx. Location	Targeted aquifer	Datalogger placed?	Round 1 Sept 2018	Round 2 Oct 2018	Round 3 Nov 2018	Round 4 Dec 2018	Round 5 Jan 2019	Round 6 Feb 2019
SRT_BH006	Sydney Yard	deep		Not Found / Destroyed					
SRT_BH006A	Sydney Yard	shallow		Not Found / Destroyed					
SRT_BH039	Track 15	deep	Yes	Sampled	Sampled	Destroyed			
SRT_BH047	Platform 6/7	shallow	Yes	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
SRT_BH048	Platform 12/13	shallow		Sampled	Sampled	Sampled	Destroyed		
SRT_BH052	Platform 6/7	shallow		Covered by Hoarding	Sampled	Sampled	Sampled	Sampled	Sampled
SRT_BH053	Platform 12/13	deep		Sampled	Sampled	Covered by Hoarding	Destroyed		
SRT_BH055	Platform 20/21	shallow		Dry					
SRT_BH059	Platform 18/19	shallow			Sampled	Sampled	Sampled	Sampled	Sampled
SRT_BH063	Offsite Randle Lane	shallow	Yes	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
SRT_BH064	Sydney Yard	shallow		Sampled	Not Found / Destroyed				
SRT_BH081	Sydney Yard	shallow			Not Found / Destroyed				
SRT_BH082	Sydney Yard	shallow			Sampled	Sampled	Not Found / Destroyed		
SRT_BH084	Sydney Yard	shallow		Not Found / Destroyed					
SRT_CBH001	Platform 12/13	shallow		Sampled	Sampled	Sampled	Destroyed		
SRT_CBH007	Platform 14/15	shallow		Sampled	Destroyed				
SRT_CBH015	Platform 16/17	shallow		Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
SRT_CBH017	Platform 20/21	shallow	Yes	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled

	Well Sampled
	Not Sampled
	Not scheduled for sampling

Table 2
Summary of groundwater gauging results - September 2018 to February 2019

Well ID	Sampling Event	Date Measured	SWL (mbTOC)	BOC (mbTOC)	Elevation of well (mTOC)	SWL (mAHD)	Lithology (mAHD)	Well screen (mAHD)	Lithology (mbgl)	Well screen (mbgl)
SRT_BH039	Event 1 - Sept 2018	7/09/2018	17.085	22.62	20.17	3.085	18.47-20.07 m fill 17.63-18.47 residual soil (-14.83)-17.63 bedrock sandstone	(-4.83)-(-1.83)		
SRT_BH039	Event 2 - Oct 2018	26/10/2018	16.317	22.52	20.17	3.853				
SRT_BH047	Event 1 - Sept 2018	6/09/2018	5.026	6.96	21.31	16.284	19.71-21.11 fill 14.18-19.71 laminite / residual soil 6.31-14.18 bedrock sandstone	11.91-15.41		
SRT_BH047	Event 2 - Oct 2018	25/10/2018	3.784	6.91	21.31	17.526				
SRT_BH047	Event 3 - Nov 2018	26/11/2018	4.86	6.95	21.31	16.45				
SRT_BH047	Event 4 - Dec 2018	18/12/2018	3.768	6.94	21.31	17.542				
SRT_BH047	Event 5 - Jan 2019	17/01/2019	4.175	6.93	21.31	17.135				
SRT_BH047	Event 6 - Feb 2019	20/02/2019	4.516	6.94	21.31	16.794				
SRT_BH048	Event 1 - Sept 2018	6/09/2018	4.825	6.39	21.52	16.695	20.02-21.42 fill 15.67-20.02 laminite / residual soil 1.39-16.79 sandstone siltstone / laminite	15.02-19.02		
SRT_BH048	Event 2 - Oct 2018	26/10/2018	3.845	6.4	21.52	17.675				
SRT_BH048	Event 3 - Nov 2018	26/11/2018	4.335	6.36	21.52	17.185				
SRT_BH052	Event 2 - Oct 2018	25/10/2018	4.955	7.89	21.4	16.445	19.55-21.40 fill 16.40-19.55 residual soil 6.08-16.40 sandstone	14.2-16.9		
SRT_BH052	Event 3 - Nov 2018	26/11/2018	5.384	7.89	21.4	16.016				
SRT_BH052	Event 4 - Dec 2018	18/12/2018	5	7.89	21.4	16.4				
SRT_BH052	Event 5 - Jan 2019	17/01/2019	5.285	7.9	21.4	16.115				
SRT_BH052	Event 6 - Feb 2019	20/02/2019	5.565	7.88	21.4	15.835				
SRT_BH053	Event 1 - Sept 2018	6/09/2018	5.55	9.91	21.53	15.98	20.03-21.53 fill 18.53-20.03 residual soil 1.38-18.53 bedrock (siltstone / basalt)	11.03-16.03		
SRT_BH053	Event 2 - Oct 2018	25/10/2018	4.95	9.92	21.53	16.58				
SRT_BH059	Event 2 - Oct 2018	25/10/2018	3.03	6.02	22.84	19.81	20.04-22.84 fill 16.29-20.04 shale 7.96-16.29 sandstone	16.29-21.55		
SRT_BH059	Event 3 - Nov 2018	26/11/2018	3.96	6	22.84	18.88				
SRT_BH059	Event 4 - Dec 2018	17/12/2018	2.981	6	22.84	19.859				
SRT_BH059	Event 5 - Jan 2019	18/01/2019	3.127	6	22.84	19.713				
SRT_BH059	Event 6 - Feb 2019	20/02/2019	3.156	6	22.84	19.684				
SRT_BH063	Event 1 - Sept 2018	6/09/2018	10.89	14.66	25.41	14.52	25.15-25.41 fill 23.81-25.15 residual soil 22.70-23.18 laminite 10.32-22.70 sandstone / siltstone	11.41-18.41		
SRT_BH063	Event 2 - Oct 2018	26/10/2018	10.67	14.54	25.41	14.74				
SRT_BH063	Event 3 - Nov 2018	27/11/2018	10.75	14.54	25.41	14.66				
SRT_BH063	Event 4 - Dec 2018	17/12/2018	10.728	14.51	25.41	14.682				
SRT_BH063	Event 5 - Jan 2019	17/01/2019	10.715	14.49	25.41	14.695				
SRT_BH063	Event 6 - Feb 2019	21/02/2019	10.715	14.5	25.41	14.695				
SRT_BH064	Event 1 - Sept 2018	6/09/2018	1.71	4.46	20.39	18.68	18.19-20.39 fill 13.39-18.19 residual soil 10.15-13.39 sandstone	15.89-18.89		
SRT_BH082	Event 2 - Oct 2018	25/10/2018	4.625	7.94	20.768	16.143			0-3.2 fill 3.2-7.8 residual soil 7.8-8.0 sandstone	5-8
SRT_BH082	Event 3 - Nov 2018	26/11/2018	4.95	7.93	20.768	15.818				
SRT_CBH001	Event 1 - Sept 2018	6/09/2018	6.245	8.04	21.4	15.155	20.7-21.4 fill 13.4-20.7 residual / alluvium soil	13.4-16.3		
SRT_CBH001	Event 2 - Oct 2018	26/10/2018	5.748	8.05	21.4	15.652				
SRT_CBH001	Event 3 - Nov 2018	26/11/2018	6.045	8.03	21.4	15.355				
SRT_CBH007	Event 1 - Sept 2018	6/09/2018	5.87	6.705	21.47	15.6	20.3-21.5 fill 15.5-20.3 residual / alluvium 14.5-15.5 shale	14.5-17.5		
SRT_CBH015	Event 1 - Sept 2018	7/09/2018	3.868	5.92	22.81	18.942	20-22.91 fill 19.4-20 residual soil 16.9-17.4 shale	16.9-18.9		
SRT_CBH015	Event 2 - Oct 2018	25/10/2018	3.67	5.92	22.81	19.14				
SRT_CBH015	Event 3 - Nov 2018	27/11/2018	3.77	5.91	22.81	19.04				
SRT_CBH015	Event 4 - Dec 2018	17/12/2018	3.635	5.91	22.81	19.175				
SRT_CBH015	Event 5 - Jan 2019	18/01/2019	3.72	5.91	22.81	19.09				
SRT_CBH015	Event 6 - Feb 2019	20/02/2019	3.761	5.91	22.81	19.049				
SRT_CBH017	Event 1 - Sept 2018	7/09/2018	3.297	4.95	22.82	19.523	20-22.92 fill 17.8-20 shale	17.8-19.8		
SRT_CBH017	Event 2 - Oct 2018	25/10/2018	2.88	4.94	22.82	19.94				
SRT_CBH017	Event 3 - Nov 2018	26/11/2018	2.938	4.93	22.82	19.882				
SRT_CBH017	Event 4 - Dec 2018	17/12/2018	2.846	4.94	22.82	19.974				
SRT_CBH017	Event 5 - Jan 2019	18/01/2019	2.902	4.935	22.82	19.918				
SRT_CBH017	Event 6 - Feb 2019	20/02/2019	2.856	4.94	22.82	19.964				

SWL: static water level
mbTOC: meters below top of casing
mTOC: metres top of casing
AHD: Australian Height Datum
mbgl: metres below ground level

BH039 deep monitoring well
BH063 deep monitoring well offsite location

Appendix B
Table 3 Summary of groundwater field paramaters - September 2018 to February 2019

Well ID	Sampling Event	Date Measured	SWL (mbTOC)	BOC (mbTOC)	Dissolved Oxygen (ppm)	Electrical Conductivity (us/cm)	pH	Ox-Red Potential (mV)	Temperature (°C)
SRT_BH039	Event 1 - Sept 2018	7/09/2018	17.085	22.62	4.12	3114	11.83	-142	20
SRT_BH039	Event 2 - Oct 2018	26/10/2018	16.317	22.52	0.19	4286	12.07	-244.4	21
SRT_BH047	Event 1 - Sept 2018	6/09/2018	5.026	6.96	2.14	433.3	7.08	-89.5	19.6
SRT_BH047	Event 2 - Oct 2018	25/10/2018	3.784	6.91	1.83	438.1	7.51	77.1	19.5
SRT_BH047	Event 3 - Nov 2018	26/11/2018	4.86	6.95	0.92	411.6	7.29	-38.1	19.8
SRT_BH047	Event 4 - Dec 2018	18/12/2018	3.768	6.94	4.98	359.7	7.22	161.1	20.5
SRT_BH047	Event 5 - Jan 2019	17/01/2019	4.175	6.93	4.96	386.1	7.22	119.3	21.4
SRT_BH047	Event 6 - Feb 2019	20/02/2019	4.516	6.94	0.35	439.6	8.73	111.4	20.4
SRT_BH048	Event 1 - Sept 2018	6/09/2018	4.825	6.39	2.91	228.6	5.27	-52.1	19.9
SRT_BH048	Event 2 - Oct 2018	26/10/2018	3.845	6.4	5.18	236.1	5.44	146.2	19.4
SRT_BH048	Event 3 - Nov 2018	26/11/2018	4.335	6.36	1.95	226.7	5.93	32.8	19.9
SRT_BH052	Event 2 - Oct 2018	25/10/2018	4.955	7.89	4.6	262	5.96	113	20
SRT_BH052	Event 3 - Nov 2018	26/11/2018	5.384	7.89	4.8	308	6.4	3.7	20.2
SRT_BH052	Event 4 - Dec 2018	18/12/2018	5	7.89	5.064	270.9	6.17	206.1	20.3
SRT_BH052	Event 5 - Jan 2019	17/01/2019	5.285	7.9	4.58	335.9	6.24	159.3	20.7
SRT_BH052	Event 6 - Feb 2019	20/02/2019	5.565	7.88	4.05	389	7.14	150.1	21.1
SRT_BH053	Event 1 - Sept 2018	6/09/2018	5.55	9.91	0.13	249.7	6	-202.6	19.8
SRT_BH053	Event 2 - Oct 2018	25/10/2018	4.95	9.92	0.06	330.5	6.34	6.9	20
SRT_BH059	Event 2 - Oct 2018	25/10/2018	3.03	6.02	2.71	387.9	6.95	87.9	19.4
SRT_BH059	Event 3 - Nov 2018	26/11/2018	3.96	6	4.02	384	6.72	17.6	20.2
SRT_BH059	Event 4 - Dec 2018	17/12/2018	2.981	6	2.86	404.9	7.06	178.8	21
SRT_BH059	Event 5 - Jan 2019	18/01/2019	3.127	6	1.74	381	7.02	128.6	21.7
SRT_BH059	Event 6 - Feb 2019	20/02/2019	3.156	6	2.93	394.2	7.07	147.9	21.4
SRT_BH063	Event 1 - Sept 2018	6/09/2018	10.89	14.66	4.35	795	6.72	-68.2	21.2
SRT_BH063	Event 2 - Oct 2018	26/10/2018	10.67	14.54	2.56	730	6.6	47.6	21.4
SRT_BH063	Event 3 - Nov 2018	27/11/2018	10.75	14.54	2.5	707	6.51	25	21.5
SRT_BH063	Event 4 - Dec 2018	17/12/2018	10.728	14.51	2.71	756	6.64	129.6	21.8
SRT_BH063	Event 5 - Jan 2019	17/01/2019	10.715	14.49	3.2	782	6.84	57.7	21.4
SRT_BH063	Event 6 - Feb 2019	21/02/2019	10.715	14.5	3.76	711	6.61	110.5	21.7
SRT_BH064	Event 1 - Sept 2018	6/09/2018	1.71	4.46	1.55	342.6	9.81	-150.2	19
SRT_BH082	Event 2 - Oct 2018	25/10/2018	4.625	7.94	0.24	185.2	5.14	151.5	19.9
SRT_BH082	Event 3 - Nov 2018	26/11/2018	4.95	7.93	0.15	175.8	5.44	14.9	20.2
SRT_CBH001	Event 1 - Sept 2018	6/09/2018	6.245	8.04	2.52	197.2	5.02	-44.9	20.6
SRT_CBH001	Event 2 - Oct 2018	26/10/2018	5.748	8.05	2.04	198.1	5.07	166	20.1
SRT_CBH001	Event 3 - Nov 2018	26/11/2018	6.045	8.03	2.26	191.6	6.19	-675.8	21.2
SRT_CBH007	Event 1 - Sept 2018	6/09/2018	5.87	6.705	2.214	174.4	5.59	-25.5	19.8
SRT_CBH015	Event 1 - Sept 2018	7/09/2018	3.868	5.92	0.87	202	5.24	-169.1	20.1
SRT_CBH015	Event 2 - Oct 2018	25/10/2018	3.67	5.92	0.48	259.7	5.59	126.7	19.9
SRT_CBH015	Event 3 - Nov 2018	27/11/2018	3.77	5.91	0.11	207.9	5.53	-50.9	20.1
SRT_CBH015	Event 4 - Dec 2018	17/12/2018	3.635	5.91	0.59	231.2	5.44	242.2	20.8
SRT_CBH015	Event 5 - Jan 2019	18/01/2019	3.72	5.91	0.81	227.9	5.4	210	21.3
SRT_CBH015	Event 6 - Feb 2019	20/02/2019	3.761	5.91	0.4	229	5.44	204.1	21.1

Appendix B
Table 4 - Summary of groundwater analytical results against adopted screening criteria

	Iron speciation	Inorganics	dity & Alkalin		Major Ions						Nutrients		Metals									BTEXN								TRH - NEPM 2013							
	Ferrous Iron	Cyanide (Total)	Alkalinity (Carbonate as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Calcium	Magnesium	Potassium	Sodium	Chloride	Sulfate	Ammonia as N	Nitrate (as N)	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	Naphthalene (BTEXN)	BTEX (Sum of Total) - Lab Calc	F1 (C6-C10 minus BTEX)	C6-C10 Fraction	F2 (>C10-C16 minus Naphthalene)	>C10-C16 Fraction	F3 (>C16-C34 Fraction)	F4 (>C34-C40 Fraction)	>C10-C40 (Sum of Total)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	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
EQL	0.05	0.005	10	20	0.5	0.5	0.5	0.5	1	5	0.01	0.02	0.001	0.0002	0.001	0.001	0.001	0.005	0.0001	0.001	0.005	1	1	1	1	2	3	10	1	20	20	50	50	100	100	100
NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand																																				
2-4m																						5000	NL	NL			NL	NL		6000		NL				
4-8m																						5000	NL	NL			NL	NL		6000		NL				
>8m																						5000	NL	NL			NL	NL		7000		NL				
NEPM 2013 Table 1C GILs, Marine Waters		0.004									0.91			0.0007	0.0044	0.0013	0.0044		0.0001	0.007	0.015	500						50								
NHMRC Recreational Guidelines 2008 - Recreational		8								50000			1	0.2		200	1	50	0.1	2		100	80000	30000			60000									
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domestic)		1											1	1	3	5	2	10	0.03	3	5	100	500	1000			1000									

Field_ID	Location_Code	Sampled_Date_Time	Sample_Type																																			
SRT-BH039	SRT_BH039	7/09/2018	Normal	-	0.007	80	<20	460	<0.5	160	140	28	940	0.7	1.3	<0.001	<0.0002	0.003	0.03	0.003	-	<0.0001	0.004	0.047	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	200	<100	200
SRT-BH039	SRT_BH039	25/10/2018	Normal	<0.05	<0.005	70	<20	460	<0.5	110	98	45	720	1	0.05	<0.001	<0.0002	0.001	0.008	<0.001	<0.005	<0.0001	0.006	0.027	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT-BH047	SRT_BH047	6/09/2018	Normal	-	<0.005	<10	140	64	8.1	1	34	27	7.6	<0.01	21	<0.001	<0.0002	<0.001	0.018	<0.001	-	<0.0001	0.003	0.021	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT-BH047	SRT_BH047	25/10/2018	Normal	<0.05	<0.005	<10	160	58	6.1	0.9	32	25	14	<0.01	18	<0.001	<0.0002	<0.001	0.004	<0.001	<0.005	<0.0001	<0.001	0.005	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT-BH047	SRT_BH047	26/11/2018	Normal	-	<0.005	<10	170	53	6.9	0.9	31	39	12	<0.01	17	<0.001	<0.0002	<0.001	0.022	0.002	-	<0.0001	0.005	0.039	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_BH047	SRT_BH047	18/12/2018	Normal	0.06	<0.005	<10	63	35	8	1.6	31	33	16	<0.01	22	<0.001	<0.0002	<0.001	0.021	0.002	0.009	<0.0001	0.004	0.031	<1	2	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_BH047	SRT_BH047	17/01/2019	Normal	0.05	0.02	<10	190	61	6.8	0.9	29	23	11	<0.01	19	<0.001	<0.0002	<0.001	0.016	0.001	<0.005	<0.0001	0.005	0.053	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_BH047	SRT_BH047	20/02/2019	Normal	<0.05	<0.005	<10	100	26	6.6	1.3	53	26	12	<0.01	19	<0.001	<0.0002	<0.001	0.018	0.002	0.008	<0.0001	0.002	0.013	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	430	430	1400	300	2130
SRT-BH048	SRT_BH048	6/09/2018	Normal	-	<0.005	<10	130	19	6.2	2.7	56	34	47	<0.01	0.09	<0.001	<0.0002	<0.001	0.045	0.004	-	<0.0001	0.011	0.066	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT-BH048	SRT_BH048	25/10/2018	Normal	<0.05	<0.005	<10	<20	3.7	1.8	1.6	39	34	48	<0.01	0.12	<0.001	<0.0002	<0.001	0.13	0.006	0.55	<0.0001	0.017	0.18	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_BH048	SRT_BH048	26/11/2018	Normal	-	<0.005	<10	27	5.2	2.5	1.6	36	51	49	<0.01	0.1	<0.001	<0.0002	<0.001	0.045	0.005	-	<0.0001	0.011	0.086	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT-BH052	SRT_BH052	25/10/2018	Normal	<0.05	<0.005	<10	38	14	3.7	1	41	22	20	<0.01	10	<0.001	<0.0002	<0.001	0.063	0.005	0.036	<0.0001	0.008	0.086	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_BH052	SRT_BH052	26/11/2018	Normal	-	<0.005	<10	73	18	3.7	1	40	41	27	<0.01	9.2	<0.001	<0.0002	<0.001	0.022	0.003	-	<0.0001	0.006	0.085	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_BH052	SRT_BH052	18/12/2018	Normal	<0.05	<0.005	<10	35	17	4.1	1.1	38	43	18	<0.01	10	<0.001	<0.0002	<0.001	0.018	0.001	0.02	<0.0001	0.004	0.023	<1	2	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_BH052	SRT_BH052	17/01/2019	Normal	<0.05	0.02	<10	47	18	4.5	1	39	42	27	<0.01	9.1	<0.001	<0.0002	<0.001	0.32	0.019	0.029	<0.0001	0.013	0.44	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_BH052	SRT_BH052	20/02/2019	Normal	<0.05	<0.005	61	130	14	3.6	1.6	60	42	28	<0.01	6.2	<0.001	<0.0002	<0.001	0.006	<0.001	0.006	<0.0001	<0.001	0.006	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT-BH053	SRT_BH053	6/09/2018	Normal	-	<0.005	<10	72	6.3	6.1	2.6	37	32	28	<0.01	<0.02	<0.001	<0.0002	<0.001	0.23	0.014	-	<0.0001	0.029	0.32	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT-BH053	SRT_BH053	25/10/2018	Normal	<0.05	<0.005	<10	52	5.1	4.9	2.5	33	26	27	<0.01	0.39	<0.001	<0.0002	<0.001	0.004	<0.001	1	<0.0001	0.046	0.022	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT-BH059	SRT_BH059	25/10/2018	Normal	<0.05	<0.005	<10	180	63	7.9	6.6	12	13	17	<0.01	3.5	<0.001	<0.0002	0.001	0.018	0.002	<0.005	<0.0001	0.004	0.027	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_BH059	SRT_BH059	26/11/2018	Normal	-	<0.005	<10	210	58	7.4	5.5	9	34	13	<0.01	2.3	<0.001	<0.0002	0.001	0.042	0.003	-	<0.0001	0.008	0.077	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	3100	3100	2900	800	6800
SRT_BH059	SRT_BH059	17/12/2018	Normal	0.8	<0.005	<10	170	70	5.7	7.6	11	10	24	<0.01	7.9	<0.001	<0.0002	<0.001	0.056	0.003	<0.005	<0.0001	0.007	0.053	<1	2	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_BH059	SRT_BH059	18/01/2019	Normal	<0.05	0.017	<10	170	64	6.1	5.9	9.5	8.1	13	<0.01	2.8	<0.001	<0.0002	<0.001	0.04	0.002	<0.005	<0.0001	0.007	0.054	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_BH059	SRT_BH059	20/02/2019	Normal	<0.05	<0.005	<10	170	69	7.7	6.7	14	11	12	<0.01	2.5	<0.001	<0.0002	<0.001	<0.001	<0.001	<0.005	<0.0001	<0.001	<0.005	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT-BH063	SRT_BH063	6/09/2018	Normal	-	<0.005	<10	330	66	38	5.8	82	72	45	<0.01	0.15	<0.001	<0.0002	<0.001	0.014	<0.001	-	<0.0001	0.02	0.22	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT-BH063	SRT_BH063	25/10/2018	Normal	<0.05	<0.005	<10	270	50	30	5.5	68	53	53	<0.01	0.09	<0.001	<0.0002	<0.001	0.12	0.005	0.049	<0.0001	0.083	0.21	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_BH063	SRT_BH063	26/11/2018	Normal	-	<0.005	<10	320	48	31	5	63	68	52	<0.01	0.1	<0.001	<0.0002	<0.001	0.027	0.003	-	<0.0001	0.014	0.067	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	730	730	1100	200	2030
SRT_BH063	SRT_BH063	17/12/2018	Normal	0.39	<0.005	<10	290	58	33	6.4	75	76	56	<0.01	0.24	<0.001	<0.0002	<0.001	0.003	0.005	<0.005	<0.0001	0.005	0.019	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_BH063	SRT_BH063	17/01/2019	Normal	0.05	0.018	<10	290	57	32	5.4	70	68	52	<0.01	0.13	<0.001	<0.0002	<0.001	0.047	0.003	0.011	<0.0001	0.013	0.11	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_BH063	SRT_BH063	21/02/2019	Normal	0.05	<0.005	<10	250	51	33	5.8	73	71	61	<0.01	0.13	<0.001	<0.0002	<0.001	0.029	0.002	0.009	<0.0001	0.01	0.034	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT-BH064	SRT_BH064	6/09/2018	Normal	-	0.028	34	46	5.7	0.7	18	63	23	58	<0.01	2.3	0.005	<0.0002	<0.001	0.024	0.002	-	<0.0001	0.006	0.032	3	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT-BH082	SRT_BH082	25/10/2018	Normal	0.16	<0.005	<10	<20	2.9	4	1.3	27	16	36	<0.01	0.34	<0.001	<0.0002	<0.001	<0.001	<0.001	0.054	<0.0001	0.001	0.009	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_BH082	SRT_BH082	26/11/2018	Normal	-	<0.005	<10	<20	2.3	3.6	1.1	25	38	31	<0.01	0.36	<0.001	<0.0002	<0.001	0.007	0.002	-	<0.0001	0.002	0.021	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT-CBH001	SRT_CBH001	6/09/2018	Normal	-	<0.005	<10	22	8.7	6.8	1.8	24	17	34	<0.01	9.2	<0.001	<0.0002	<0.001	0.003	<0.001	-	<0.0001	0.004	0.012	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT-CBH001	SRT_CBH001	25/10/2018	Normal	<0.05	<0.005	<10	<20	5.9	4.4	1.6	24	17	32	<0.01	7.1	<0.001	<0.0002	<0.001	0.13	0.004	0.62	<0.0001	0.014	0.22	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_CBH001	SRT_CBH001	26/11/2018	Normal	-	<0.005	<10	<20	6.6	4.9	1.6	21	35	32	<0.01	7.8	<0.001	<0.0002	<0.001	0.042	0.003	-	<0.0001	0.012	0.094	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	510	510	1000	300	1810
SRT-CBH007	SRT_CBH007	6/09/2018	Normal	-	0.012	<10	<20	1.4	3	1.7	25	9.7	46	<0.01	1.9	<0.001	<0.0002	<0.001	0.36	0.023	-	<0.0001	0.02	0.48	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT-CBH015	SRT_CBH015	7/09/2018	Normal	-	<0.005	<10	32	4	5.7	3.8	27	11	79	<0.01	4.3	<0.001	<0.0002	<0.001	0.038	0.004	-	<0.0001	0.013	0.072	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT-CBH015	SRT_CBH015	25/10/2018	Normal	<0.05	<0.005	<10	49	3.1	4.8	3.2	35	9.8	49	<0.01	2.7	<0.001	<0.0002	<0.001	0.034	0.004	5.2	<0.0001	0.016	0.073	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_CBH015	SRT_CBH015	26/11/2018	Normal	-	<0.005	<10	30	2.9	5.3	3.8	24	11	45	<0.01	3.5	<0.001	<0.0002	<0.001	<0.001	<0.001	-	<0.0001	0.009	0.02	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_CBH015	SRT_CBH015	17/12/2018	Normal	<0.05	<0.005	<10	33	3.4	5	3.6	28	12	52	<0.01	3.7	<0.001	<0.0002	<0.001	0.019	0.002	5.4	<0.0001	0.011	0.04	<1	2	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_CBH015	SRT_CBH015	18/01/2019	Normal	0.05	0.019	<10	30	3.2	5.4	3.4	24	12	47	<0.01	3.1	<0.001	<0.0002	<0.001	0.002	<0.001	6	<0.0001	0.009	0.022	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_CBH015	SRT_CBH015	20/02/2019	Normal	0.05	<0.005	<10	30	2.5	4.4	3.1	23	13	49	<0.01	3	<0.001	<0.0002	<0.001	0.001	<0.001	6.6	<0.0001	0.01	0.023	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100

	Iron speciation	Inorganics	dity & Alkalin		Major Ions						Nutrients		Metals									BTEXN								TRH - NEPM 2013							
	Ferrous Iron	Cyanide (Total)	Alkalinity (Carbonate as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Calcium	Magnesium	Potassium	Sodium	Chloride	Sulfate	Ammonia as N	Nitrate (as N)	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	Naphthalene (BTEXN)	BTEX (Sum of Total) - Lab Calc	F1 (C6-C10 minus BTEX)	C6-C10 Fraction	F2 (>C10-C16 minus Naphthalene)	>C10-C16 Fraction	F3 (>C16-C34 Fraction)	F4 (>C34-C40 Fraction)	>C10-C40 (Sum of Total)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	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
EQL	0.05	0.005	10	20	0.5	0.5	0.5	0.5	1	5	0.01	0.02	0.001	0.0002	0.001	0.001	0.001	0.005	0.0001	0.001	0.005	1	1	1	1	2	3	10	1	20	20	50	50	100	100	100
NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand																																				
2-4m																						5000	NL	NL			NL	NL		6000		NL				
4-8m																						5000	NL	NL			NL	NL		6000		NL				
>8m																						5000	NL	NL			NL	NL		7000		NL				
NEPM 2013 Table 1C GILs, Marine Waters		0.004									0.91			0.0007	0.0044	0.0013	0.0044		0.0001	0.007	0.015	500						50								
NHMRC Recreational Guidelines 2008 - Recreational		8								50000			1	0.2		200	1	50	0.1	2		100	80000	30000			60000									
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domestic)		1											1	1	3	5	2	10	0.03	3	5	100	500	1000			1000									
Field_ID	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**																																		
SRT-CBH017	SRT_CBH017	7/09/2018	Normal	-	<0.005	<10	78	16	8.1	3.5	19	9.7	21	<0.01	0.2	<0.001	<0.0002	<0.001	0.038	0.004	-	<0.0001	0.006	0.069	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT-CBH017	SRT_CBH017	25/10/2018	Normal	<0.05	<0.005	<10	65	13	6	2.9	14	8.8	19	<0.01	0.62	<0.001	<0.0002	<0.001	0.081	0.004	0.85	<0.0001	0.01	0.12	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_CBH017	SRT_CBH017	26/11/2018	Normal	-	<0.005	<10	84	15	6.7	2.7	13	16	18	<0.01	0.38	<0.001	<0.0002	<0.001	0.12	0.006	-	<0.0001	0.016	0.21	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_CBH017	SRT_CBH017	17/12/2018	Normal	<0.05	<0.005	<10	42	19	9	3.2	17	11	17	<0.01	2.5	<0.001	<0.0002	<0.001	0.003	<0.001	1.8	<0.0001	0.008	0.017	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_CBH017	SRT_CBH017	18/01/2019	Normal	<0.05	0.017	<10	44	13	6.7	2.7	12	7.9	12	<0.01	1.9	<0.001	<0.0002	<0.001	0.002	<0.001	1.8	<0.0001	0.005	0.01	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
SRT_CBH017	SRT_CBH017	20/02/2019	Normal	<0.05	<0.005	<10	32	8.7	5	2.7	9.6	15	16	<0.01	3.1	<0.001	<0.0002	<0.001	0.032	0.002	1	<0.0001	0.01	0.033	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
QA02	SRT_BH039	7/09/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.0001	0.003	0.014	<0.001	-	<0.0001	0.002	0.013	<1	<2	<2	<2	<2	<2	-	<1	<20	<20	<100	<100	230	<100	230
QA02	SRT_BH039	26/10/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.0001	0.001	0.002	<0.001	-	<0.0001	0.002	<0.005	<1	<2	<2	<2	<2	<2	-	<1	<20	<20	<100	<100	220	<100	220
QA02	SRT_BH063	27/11/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.0001	<0.001	0.002	<0.001	-	<0.0001	0.008	0.016	<1	<2	<2	<2	<2	<2	-	<1	<20	<20	<100	<100	<100	<100	<100
QA02	SRT_BH063	21/02/2019	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	0.001	<0.0001	0.001	0.004	<0.001	-	<0.0001	0.007	0.005	<1	<2	<2	<2	<2	<2	-	<1	<20	<20	<100	<100	<100	<100	<100
QA02	SRT_CBH015	17/12/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	0.0001	<0.001	<0.001	<0.001	-	<0.0001	0.01	0.024	<1	<2	<2	<2	<2	<2	-	<1	<20	<20	<100	<100	<100	<100	<100
QA02	SRT_CBH015	18/01/2019	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	0.0002	<0.001	0.037	0.004	-	<0.0001	0.012	0.077	<1	<2	<2	<2	<2	<2	<5	<1	<20	<20	<100	<100	<100	<100	<100
QA01	SRT_BH063	17/12/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.0002	<0.001	0.002	0.003	-	<0.0001	0.004	0.015	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
QA01	SRT_BH063	17/01/2019	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.0002	<0.001	0.004	<0.001	-	<0.0001	0.004	0.023	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
QA01	SRT_BH082	25/10/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.0002	<0.001	<0.001	<0.001	-	<0.0001	0.001	0.009	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
QA01	SRT_BH082	26/11/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.0002	<0.001	0.073	0.013	-	<0.0001	0.01	0.17	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
QA01	SRT_CBH001	6/09/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.0002	<0.001	0.041	0.003	-	<0.0001	0.012	0.058	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100
QA01	SRT_CBH017	20/02/2019	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.0002	0.002	<0.001	<0.001	-	<0.0001	0.01	0.023	<1	<1	<1	<1	<2	<3	<10	-	<20	<20	<50	<50	<100	<100	<100

				NEPM 2013 - SG Cle			TRH - NEPM 1999					RH - NEPM 1999 - SG Clean				PAHs																		
				>C10-C16 SG Cleanup	>C16-C34 SG Cleanup	>C34-C40 SG Cleanup	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 (Sum of Total)	C10-C14 SG Cleanup	C15-C28 SG Cleanup	C29-C36 SG Cleanup	C10-C36 (sum) SG Cleanup	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo[b+j]fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Naphthalene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene-PAH	Phenanthrene	Pyrene	PAHs (Sum of total) - Lab calc	Total 8 PAHs (as BaP TEQ)(zero LOR) - Lab Cal
				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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				50	100	100	20	50	100	100	100	50	100	100	100	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5
NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand																																		
2-4m																											NL			NL				
4-8m																											NL			NL				
>8m																											NL			NL				
NEPM 2013 Table 1C GILs, Marine Waters																											50			50				
NHMRC Recreational Guidelines 2008 - Recreational																				1														
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domesti																																	5000	
Field_ID	Location_Code	Sampled_Date_Time	Sample_Type																															
SRT-BH039	SRT_BH039	7/09/2018	Normal	<50	<100	<100	<20	<50	200	<100	200	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-BH039	SRT_BH039	25/10/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-BH047	SRT_BH047	6/09/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-BH047	SRT_BH047	25/10/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH047	SRT_BH047	26/11/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH047	SRT_BH047	18/12/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH047	SRT_BH047	17/01/2019	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH047	SRT_BH047	20/02/2019	Normal	<50	<100	<100	<20	140	1100	700	1940	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-BH048	SRT_BH048	6/09/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-BH048	SRT_BH048	25/10/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH048	SRT_BH048	26/11/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-BH052	SRT_BH052	25/10/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH052	SRT_BH052	26/11/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH052	SRT_BH052	18/12/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH052	SRT_BH052	17/01/2019	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH052	SRT_BH052	20/02/2019	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-BH053	SRT_BH053	6/09/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-BH053	SRT_BH053	25/10/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-BH059	SRT_BH059	25/10/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH059	SRT_BH059	26/11/2018	Normal	<50	100	<100	<20	2900	2600	900	6400	<50	100	<100	100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH059	SRT_BH059	17/12/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH059	SRT_BH059	18/01/2019	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH059	SRT_BH059	20/02/2019	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-BH063	SRT_BH063	6/09/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-BH063	SRT_BH063	25/10/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH063	SRT_BH063	26/11/2018	Normal	<50	<100	<100	<20	620	1000	300	1920	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH063	SRT_BH063	17/12/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH063	SRT_BH063	17/01/2019	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH063	SRT_BH063	21/02/2019	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-BH064	SRT_BH064	6/09/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-BH082	SRT_BH082	25/10/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_BH082	SRT_BH082	26/11/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-CBH001	SRT_CBH001	6/09/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-CBH001	SRT_CBH001	25/10/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_CBH001	SRT_CBH001	26/11/2018	Normal	<50	<100	<100	<20	140	800	400	1340	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-CBH007	SRT_CBH007	6/09/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-CBH015	SRT_CBH015	7/09/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-CBH015	SRT_CBH015	25/10/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_CBH015	SRT_CBH015	26/11/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_CBH015	SRT_CBH015	17/12/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_CBH015	SRT_CBH015	18/01/2019	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_CBH015	SRT_CBH015	20/02/2019	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-

				Phenols																		
				3,4-Methylphenol (m,p-cresol)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,4-dinitrophenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-chloro-3-methylphenol	4-nitrophenol	Pentachlorophenol	Phenol	tetrachlorophenols	Phenols (Total Halogenated)	Phenols (Total Non Halogenated)
				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				6	10	10	3	3	30	3	3	3	10	30	100	10	30	10	3	30	10	100
NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand																						
2-4m																						
4-8m																						
>8m																						
NEPM 2013 Table 1C GILs, Marine Waters																		11	400			
NHMRC Recreational Guidelines 2008 - Recreational						2000	20000				30000							1000				
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domesti																						
Field_ID	Location_Code	Sampled_Date_Time	Sample_Type																			
SRT-BH039	SRT_BH039	7/09/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-BH039	SRT_BH039	25/10/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-BH047	SRT_BH047	6/09/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-BH047	SRT_BH047	25/10/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH047	SRT_BH047	26/11/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH047	SRT_BH047	18/12/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH047	SRT_BH047	17/01/2019	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH047	SRT_BH047	20/02/2019	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-BH048	SRT_BH048	6/09/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-BH048	SRT_BH048	25/10/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH048	SRT_BH048	26/11/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-BH052	SRT_BH052	25/10/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH052	SRT_BH052	26/11/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH052	SRT_BH052	18/12/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH052	SRT_BH052	17/01/2019	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH052	SRT_BH052	20/02/2019	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-BH053	SRT_BH053	6/09/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-BH053	SRT_BH053	25/10/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-BH059	SRT_BH059	25/10/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH059	SRT_BH059	26/11/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH059	SRT_BH059	17/12/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH059	SRT_BH059	18/01/2019	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH059	SRT_BH059	20/02/2019	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-BH063	SRT_BH063	6/09/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-BH063	SRT_BH063	25/10/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH063	SRT_BH063	26/11/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH063	SRT_BH063	17/12/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH063	SRT_BH063	17/01/2019	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH063	SRT_BH063	21/02/2019	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-BH064	SRT_BH064	6/09/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-BH082	SRT_BH082	25/10/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH082	SRT_BH082	26/11/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-CBH001	SRT_CBH001	6/09/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-CBH001	SRT_CBH001	25/10/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH001	SRT_CBH001	26/11/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-CBH007	SRT_CBH007	6/09/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-CBH015	SRT_CBH015	7/09/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-CBH015	SRT_CBH015	25/10/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH015	SRT_CBH015	26/11/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH015	SRT_CBH015	17/12/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH015	SRT_CBH015	18/01/2019	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH015	SRT_CBH015	20/02/2019	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100

Appendix B
Table 4 - Summary of groundwater analytical results against adopted screening criteria

Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	NEPM 2013 - SG Cle >C10-C16 SG Cleanup	>C16-C34 SG Cleanup	>C34-C40 SG Cleanup	TRH - NEPM 1999 C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 (Sum of Total)	RH - NEPM 1999 - SG Clean C10-C14 SG Cleanup	C15-C28 SG Cleanup	C29-C36 SG Cleanup	C10-C36 (sum) SG Cleanup
				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				50	100	100	20	50	100	100	100	50	100	100	100
NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand															
2-4m															
4-8m															
>8m															
NEPM 2013 Table 1C GILs, Marine Waters															
NHMRC Recreational Guidelines 2008 - Recreational															
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domesti															
SRT-CBH017	SRT_CBH017	7/09/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100
SRT-CBH017	SRT_CBH017	25/10/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100
SRT_CBH017	SRT_CBH017	26/11/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100
SRT_CBH017	SRT_CBH017	17/12/2018	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100
SRT_CBH017	SRT_CBH017	18/01/2019	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100
SRT_CBH017	SRT_CBH017	20/02/2019	Normal	<50	<100	<100	<20	<50	<100	<100	<100	<50	<100	<100	<100
QA02	SRT_BH039	7/09/2018	Interlab_D	-	-	-	<20	<50	240	<50	240	-	-	-	-
QA02	SRT_BH039	26/10/2018	Interlab_D	-	-	-	<20	<50	210	<50	210	-	-	-	-
QA02	SRT_BH063	27/11/2018	Interlab_D	-	-	-	<20	<50	<100	<50	<50	-	-	-	-
QA02	SRT_BH063	21/02/2019	Interlab_D	-	-	-	<20	<50	<100	<50	<50	-	-	-	-
QA02	SRT_CBH015	17/12/2018	Interlab_D	-	-	-	<20	<50	<100	<50	<50	-	-	-	-
QA02	SRT_CBH015	18/01/2019	Interlab_D	-	-	-	<20	<50	<100	<50	<50	-	-	-	-
QA01	SRT_BH063	17/12/2018	Field_D	-	-	-	<20	<50	<100	<100	<100	-	-	-	-
QA01	SRT_BH063	17/01/2019	Field_D	-	-	-	<20	<50	<100	<100	<100	-	-	-	-
QA01	SRT_BH082	25/10/2018	Field_D	-	-	-	<20	<50	<100	<100	<100	-	-	-	-
QA01	SRT_BH082	26/11/2018	Field_D	-	-	-	<20	<50	<100	<100	<100	-	-	-	-
QA01	SRT_CBH001	6/09/2018	Field_D	-	-	-	<20	<50	<100	<100	<100	-	-	-	-
QA01	SRT_CBH017	20/02/2019	Field_D	-	-	-	<20	<50	<100	<100	<100	-	-	-	-

Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	PAHs Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo[b+j]fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Naphthalene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene-PAH	Phenanthrene	Pyrene	PAHs (Sum of total) - Lab calc	Total 8 PAHs (as BaP TEQ)(zero LOR) - Lab Cal
				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	1	1	1	1	1	1	1	1	0.5
NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand																						
2-4m															NL			NL				
4-8m															NL			NL				
>8m															NL			NL				
NEPM 2013 Table 1C GILs, Marine Waters															50			50				
NHMRC Recreational Guidelines 2008 - Recreational								1														
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domesti																					5000	
SRT-CBH017	SRT_CBH017	7/09/2018	Normal	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT-CBH017	SRT_CBH017	25/10/2018	Normal	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_CBH017	SRT_CBH017	26/11/2018	Normal	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_CBH017	SRT_CBH017	17/12/2018	Normal	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_CBH017	SRT_CBH017	18/01/2019	Normal	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
SRT_CBH017	SRT_CBH017	20/02/2019	Normal	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
QA02	SRT_BH039	7/09/2018	Interlab_D	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<0.5	<0.5
QA02	SRT_BH039	26/10/2018	Interlab_D	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<0.5	<0.5
QA02	SRT_BH063	27/11/2018	Interlab_D	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<0.5	<0.5
QA02	SRT_BH063	21/02/2019	Interlab_D	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<0.5	<0.5
QA02	SRT_CBH015	17/12/2018	Interlab_D	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<0.5	<0.5
QA02	SRT_CBH015	18/01/2019	Interlab_D	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<0.5	<0.5
QA01	SRT_BH063	17/12/2018	Field_D	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
QA01	SRT_BH063	17/01/2019	Field_D	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
QA01	SRT_BH082	25/10/2018	Field_D	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
QA01	SRT_BH082	26/11/2018	Field_D	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
QA01	SRT_CBH001	6/09/2018	Field_D	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-
QA01	SRT_CBH017	20/02/2019	Field_D	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-

Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Phenols 3,4-Methylphenol (m,p-cresol)	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,4-dinitrophenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-chloro-3-methylphenol	4-nitrophenol	Pentachlorophenol	Phenol	tetrachlorophenols	Phenols (Total Halogenated)	Phenols (Total Non Halogenated)
				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				6	10	10	3	3	30	3	3	3	10	30	100	10	30	10	3	30	10	100
NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand																						
2-4m																						
4-8m																						
>8m																						
NEPM 2013 Table 1C GILs, Marine Waters																		11	400			
NHMRC Recreational Guidelines 2008 - Recreational						2000	20000				30000							1000				
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domesti																						
SRT-CBH017	SRT_CBH017	7/09/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-CBH017	SRT_CBH017	25/10/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH017	SRT_CBH017	26/11/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH017	SRT_CBH017	17/12/2018	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH017	SRT_CBH017	18/01/2019	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH017	SRT_CBH017	20/02/2019	Normal	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
QA02	SRT_BH039	7/09/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH039	26/10/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	27/11/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	21/02/2019	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_CBH015	17/12/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_CBH015	18/01/2019	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH063	17/12/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH063	17/01/2019	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH082	25/10/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH082	26/11/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_CBH001	6/09/2018	Field_D	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
QA01	SRT_CBH017	20/02/2019	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B
Table 4 - Summary of groundwater analytical results against adopted screening criteria

OC Pesticides

Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Organochlorine pesticides EPAVic	Other organochlorine pesticides EPAVic	4,4'-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	d-BHC	4,4 DDD	4,4 DDT	DDT+DDE+DDD - Lab Calc	Dieldrin	Endosulfan I (alpha)	Endosulfan II (beta)	Endosulfan Sulfate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Toxaphene
				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	µg/L	µg/L
EQL				1	1	0.1	0.1	0.1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	10
NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand																												
2-4m																												
4-8m																												
>8m																												
NEPM 2013 Table 1C GILs, Marine Waters																				0.004								
NHMRC Recreational Guidelines 2008 - Recreational									30					900									1000	30			30000	
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domesti																												
SRT-BH039	SRT_BH039	7/09/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-BH039	SRT_BH039	25/10/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-BH047	SRT_BH047	6/09/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-BH047	SRT_BH047	25/10/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH047	SRT_BH047	26/11/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH047	SRT_BH047	18/12/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH047	SRT_BH047	17/01/2019	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH047	SRT_BH047	20/02/2019	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-BH048	SRT_BH048	6/09/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-BH048	SRT_BH048	25/10/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH048	SRT_BH048	26/11/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-BH052	SRT_BH052	25/10/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH052	SRT_BH052	26/11/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH052	SRT_BH052	18/12/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH052	SRT_BH052	17/01/2019	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH052	SRT_BH052	20/02/2019	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-BH053	SRT_BH053	6/09/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-BH053	SRT_BH053	25/10/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-BH059	SRT_BH059	25/10/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH059	SRT_BH059	26/11/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH059	SRT_BH059	17/12/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH059	SRT_BH059	18/01/2019	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH059	SRT_BH059	20/02/2019	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-BH063	SRT_BH063	6/09/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-BH063	SRT_BH063	25/10/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH063	SRT_BH063	26/11/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH063	SRT_BH063	17/12/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH063	SRT_BH063	17/01/2019	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH063	SRT_BH063	21/02/2019	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-BH064	SRT_BH064	6/09/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-BH082	SRT_BH082	25/10/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_BH082	SRT_BH082	26/11/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-CBH001	SRT_CBH001	6/09/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-CBH001	SRT_CBH001	25/10/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_CBH001	SRT_CBH001	26/11/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-CBH007	SRT_CBH007	6/09/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-CBH015	SRT_CBH015	7/09/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-CBH015	SRT_CBH015	25/10/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_CBH015	SRT_CBH015	26/11/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_CBH015	SRT_CBH015	17/12/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_CBH015	SRT_CBH015	18/01/2019	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_CBH015	SRT_CBH015	20/02/2019	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10

OP Pesticides

Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Tokuthion	Azinphos methyl	Bolstar (Sulprofos)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	EPN	Ethion	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	Malathion	Merphos	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Naled (Dibrom)
				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	µg/L	µg/L
EQL				2	2	2	2	20	2	20	2	20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand																												
2-4m																												
4-8m																												
>8m																												
NEPM 2013 Table 1C GILs, Marine Waters								0.009																				
NHMRC Recreational Guidelines 2008 - Recreational					3000	1000		1000					400	500	700	400		400	100	700	1000	700	7000		70	500	200	
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domesti																												
SRT-BH039	SRT_BH039	7/09/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH039	SRT_BH039	25/10/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH047	SRT_BH047	6/09/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH047	SRT_BH047	25/10/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH047	SRT_BH047	26/11/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH047	SRT_BH047	18/12/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH047	SRT_BH047	17/01/2019	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH047	SRT_BH047	20/02/2019	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH048	SRT_BH048	6/09/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH048	SRT_BH048	25/10/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH048	SRT_BH048	26/11/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH052	SRT_BH052	25/10/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH052	SRT_BH052	26/11/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH052	SRT_BH052	18/12/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH052	SRT_BH052	17/01/2019	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH052	SRT_BH052	20/02/2019	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH053	SRT_BH053	6/09/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH053	SRT_BH053	25/10/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH059	SRT_BH059	25/10/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH059	SRT_BH059	26/11/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH059	SRT_BH059	17/12/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH059	SRT_BH059	18/01/2019	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH059	SRT_BH059	20/02/2019	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH063	SRT_BH063	6/09/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH063	SRT_BH063	25/10/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH063	SRT_BH063	26/11/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH063	SRT_BH063	17/12/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH063	SRT_BH063	17/01/2019	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH063	SRT_BH063	21/02/2019	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH064	SRT_BH064	6/09/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH082	SRT_BH082	25/10/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH082	SRT_BH082	26/11/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-CBH001	SRT_CBH001	6/09/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-CBH001	SRT_CBH001	25/10/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH001	SRT_CBH001	26/11/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-CBH007	SRT_CBH007	6/09/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-CBH015	SRT_CBH015	7/09/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-CBH015	SRT_CBH015	25/10/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH015	SRT_CBH015	26/11/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH015	SRT_CBH015	17/12/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH015	SRT_CBH015	18/01/2019	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH015	SRT_CBH015	20/02/2019	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2

Appendix B
Table 4 - Summary of groundwater analytical results against adopted screening criteria

OC Pesticides

Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Organochlorine pesticides EPAVic	Other organochlorine pesticides EPAVic	4,4'-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	d-BHC	4,4 DDD	4,4 DDT	DDT+DDE+DDD - Lab Calc	Dieldrin	Endosulfan I (alpha)	Endosulfan II (beta)	Endosulfan Sulfate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Toxaphene
				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	µg/L	µg/L
EQL				1	1	0.1	0.1	0.1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	10
NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand																												
2-4m																												
4-8m																												
>8m																												
NEPM 2013 Table 1C GILs, Marine Waters																				0.004								
NHMRC Recreational Guidelines 2008 - Recreational									30					900									1000	30			30000	
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domesti																												
SRT-CBH017	SRT_CBH017	7/09/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT-CBH017	SRT_CBH017	25/10/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_CBH017	SRT_CBH017	26/11/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_CBH017	SRT_CBH017	17/12/2018	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_CBH017	SRT_CBH017	18/01/2019	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
SRT_CBH017	SRT_CBH017	20/02/2019	Normal	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10
QA02	SRT_BH039	7/09/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH039	26/10/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	27/11/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	21/02/2019	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_CBH015	17/12/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_CBH015	18/01/2019	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH063	17/12/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH063	17/01/2019	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH082	25/10/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH082	26/11/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_CBH001	6/09/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_CBH017	20/02/2019	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

OP Pesticides

Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Tokuthion	Azinphos methyl	Bolstar (Sulprofos)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	EPN	Ethion	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	Malathion	Merphos	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Naled (Dibrom)
				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	µg/L	µg/L
EQL				2	2	2	2	20	2	20	2	20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand																												
2-4m																												
4-8m																												
>8m																												
NEPM 2013 Table 1C GILs, Marine Waters								0.009																				
NHMRC Recreational Guidelines 2008 - Recreational					3000	1000		1000					400	500	700	400		400	100	700	1000	700	7000		70	500	200	
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domesti																												
SRT-CBH017	SRT_CBH017	7/09/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-CBH017	SRT_CBH017	25/10/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH017	SRT_CBH017	26/11/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH017	SRT_CBH017	17/12/2018	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH017	SRT_CBH017	18/01/2019	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH017	SRT_CBH017	20/02/2019	Normal	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
QA02	SRT_BH039	7/09/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH039	26/10/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	27/11/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	21/02/2019	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_CBH015	17/12/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_CBH015	18/01/2019	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH063	17/12/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH063	17/01/2019	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH082	25/10/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH082	26/11/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_CBH001	6/09/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_CBH017	20/02/2019	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B
Table 4 - Summary of groundwater analytical results against adopted screening criteria

										PCBs								Herbicides
	Omethoate	Parathion	Phorate	Pirimiphos-methyl	Pyrazophos	Ronnel	Terbufos	Trichloronate	Tetrachlorvinphos	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Total)	Dinoseb
	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	2	2	2	20	2	2	2	2	2	1	1	1	1	1	1	1	1	100
NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand																		
2-4m																		
4-8m																		
>8m																		
NEPM 2013 Table 1C GILs, Marine Waters																		
NHMRC Recreational Guidelines 2008 - Recreational	100	2000		9000	2000		90		10000									
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domesti																		

Field_ID	Location_Code	Sampled_Date_Time	Sample_Type																
SRT-BH039	SRT_BH039	7/09/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH039	SRT_BH039	25/10/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH047	SRT_BH047	6/09/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH047	SRT_BH047	25/10/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH047	SRT_BH047	26/11/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH047	SRT_BH047	18/12/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH047	SRT_BH047	17/01/2019	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH047	SRT_BH047	20/02/2019	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH048	SRT_BH048	6/09/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH048	SRT_BH048	25/10/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH048	SRT_BH048	26/11/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH052	SRT_BH052	25/10/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH052	SRT_BH052	26/11/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH052	SRT_BH052	18/12/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH052	SRT_BH052	17/01/2019	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH052	SRT_BH052	20/02/2019	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH053	SRT_BH053	6/09/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH053	SRT_BH053	25/10/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH059	SRT_BH059	25/10/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH059	SRT_BH059	26/11/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	0	<100
SRT_BH059	SRT_BH059	17/12/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH059	SRT_BH059	18/01/2019	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH059	SRT_BH059	20/02/2019	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH063	SRT_BH063	6/09/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH063	SRT_BH063	25/10/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH063	SRT_BH063	26/11/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH063	SRT_BH063	17/12/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH063	SRT_BH063	17/01/2019	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH063	SRT_BH063	21/02/2019	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH064	SRT_BH064	6/09/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH082	SRT_BH082	25/10/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH082	SRT_BH082	26/11/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-CBH001	SRT_CBH001	6/09/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-CBH001	SRT_CBH001	25/10/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH001	SRT_CBH001	26/11/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-CBH007	SRT_CBH007	6/09/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-CBH015	SRT_CBH015	7/09/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT-CBH015	SRT_CBH015	25/10/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH015	SRT_CBH015	26/11/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH015	SRT_CBH015	17/12/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH015	SRT_CBH015	18/01/2019	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH015	SRT_CBH015	20/02/2019	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<100

Appendix B
Table 4 - Summary of groundwater analytical results against adopted screening criteria

												PCBs								Herbicides
				Omethoate	Parathion	Phorate	Pirimiphos-methyl	Pyrazophos	Ronnel	Terbufos	Trichloronate	Tetrachlorvinphos	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Total)	Dinoseb
				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				2	2	2	20	2	2	2	2	2	1	1	1	1	1	1	1	1	100
NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand																					
2-4m																					
4-8m																					
>8m																					
NEPM 2013 Table 1C GILs, Marine Waters																					
NHMRC Recreational Guidelines 2008 - Recreational				100	2000		9000	2000		90		10000									
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domesti																					
Field_ID	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**																		
SRT-CBH017	SRT_CBH017	7/09/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-CBH017	SRT_CBH017	25/10/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH017	SRT_CBH017	26/11/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH017	SRT_CBH017	17/12/2018	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH017	SRT_CBH017	18/01/2019	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH017	SRT_CBH017	20/02/2019	Normal	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
QA02	SRT_BH039	7/09/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH039	26/10/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	27/11/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	21/02/2019	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_CBH015	17/12/2018	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_CBH015	18/01/2019	Interlab_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH063	17/12/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH063	17/01/2019	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH082	25/10/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH082	26/11/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_CBH001	6/09/2018	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<100
QA01	SRT_CBH017	20/02/2019	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix B
Table 5 Calculated RPD of field duplicate samples

Field Duplicates (water)
Filter: [Sampled_Date_Time] >= '01 Sep 2018' and [Sar

Lab Report Number	634274	634274		624838	624838		629922	629922		641720	641720		636542	636542		616629	ES1826658	
Field ID	SRT_BH063	QA01	**RPD**	SRT-BH082	QA01	**RPD**	SRT_BH082	QA01	**RPD**	SRT_CBH017	QA01	**RPD**	SRT_BH063	QA01	**RPD**	SRT-BH039	QA02	**RPD**
Sampled Date/Time	17/12/2018	17/12/2018		25/10/2018	25/10/2018		26/11/2018	26/11/2018		20/02/2019	20/02/2019		17/01/2019	17/01/2019		7/09/2018	7/09/2018	
Chem_Group	**ChemName**	**Units**	**EQL**															
Metals	Arsenic (Filtered)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
	Cadmium (Filtered)	mg/L	0.0002 : 0.0001 (Interlab	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.0001	0
	Chromium (III+VI) (Filtered)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	0.002	67	<0.001	<0.001	0	0.003	0.003	0
	Copper (Filtered)	mg/L	0.001	0.003	0.002	40	<0.001	<0.001	0	**0.007**	**0.073**	**165**	**0.032**	**<0.001**	**188**	**0.047**	**0.004**	**169**	**0.03**	**0.014**	**73**
	Lead (Filtered)	mg/L	0.001	0.005	0.003	50	<0.001	<0.001	0	**0.002**	**0.013**	**147**	0.002	<0.001	67	**0.003**	**<0.001**	**100**	**0.003**	**<0.001**	**100**
	Mercury (Filtered)	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
	Nickel (Filtered)	mg/L	0.001	0.005	0.004	22	0.001	0.001	0	**0.002**	**0.01**	**133**	0.01	0.01	0	**0.013**	**0.004**	**106**	0.004	0.002	67
	Zinc (Filtered)	mg/L	0.005	0.019	0.015	24	0.009	0.009	0	**0.021**	**0.17**	**156**	0.033	0.023	36	**0.11**	**0.023**	**131**	**0.047**	**0.013**	**113**
BTEXN	Benzene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Toluene	µg/l	1 : 2 (Interlab)	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<2	0
	Ethylbenzene	µg/l	1 : 2 (Interlab)	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<2	0
	Xylene (o)	µg/l	1 : 2 (Interlab)	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<2	0
	Xylene (m & p)	µg/l	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
	Xylene Total	µg/l	3 : 2 (Interlab)	<3	<3	0	<3	<3	0	<3	<3	0	<3	<3	0	<3	<3	0	<3	<2	0
	Naphthalene (BTEXN)	µg/l	10 : 5 (Interlab)	<10	<10	0	<10	<10	0	<10	<10	0	<10	<10	0	<10	<10	0			
TRH - NEPM 2013	F1 (C6-C10 minus BTEX)	µg/l	20	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0
	C6-C10 Fraction	µg/l	20	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0
	F2 (>C10-C16 minus Naphthal	µg/l	50 : 100 (Interlab)	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50	<100	0
	>C10-C16 Fraction	µg/l	50 : 100 (Interlab)	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50	<100	0
	F3 (>C16-C34 Fraction)	µg/l	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	200	230	14
	F4 (>C34-C40 Fraction)	µg/l	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0
	>C10-C40 (Sum of Total)	µg/l	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	200	230	14
TRH - NEPM 1999	C6-C9 Fraction	µg/l	20	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0
	C10-C14 Fraction	µg/l	50	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0
	C15-C28 Fraction	µg/l	100	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	200	240	18
	C29-C36 Fraction	µg/l	100 : 50 (Interlab)	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<50	0
	C10-C36 (Sum of Total)	µg/l	100 : 50 (Interlab)	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	200	240	18
PAHs	Acenaphthene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Acenaphthylene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Anthracene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Benz(a)anthracene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Benzo(a) pyrene	µg/l	1 : 0.5 (Interlab)	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<0.5	0
	Benzo[b+j]fluoranthene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Benzo(k)fluoranthene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Benzo(g,h,i)perylene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Chrysene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Dibenz(a,h)anthracene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Fluoranthene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Fluorene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Indeno(1,2,3-c,d)pyrene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Naphthalene-PAH	µg/l	1 : 5 (Interlab)	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Phenanthrene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Pyrene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	PAHs (Sum of total) - Lab calc	µg/l	1 : 0.5 (Interlab)	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<0.5	0

*RPDs have only been considered where a concentration is greater than 1 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 80 (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

Appendix B
Table 5 Calculated RPD of field duplicate samples

Field Duplicates (water)
Filter: [Sampled_Date_Time] >= '01 Sep 2018' and [Sar

Lab Report Number	624838	ES1832040		629922	ES1835581		634274	ES1838345		636542	ES1901871		641720	ES1905610	
Field ID	SRT-BH039	QA02	RPD	SRT_BH063	QA02	RPD	SRT_CBH015	QA02	RPD	SRT_CBH015	QA02	RPD	SRT_BH063	QA02	RPD
Sampled Date/Time	25/10/2018	25/10/2018		26/11/2018	26/11/2018		17/12/2018	17/12/2018		18/01/2019	18/01/2019		21/02/2019	21/02/2019	
Chem_Group	ChemName	Units	EQL												
Metals	Arsenic (Filtered)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	0.001	0
	Cadmium (Filtered)	mg/L	0.0002 : 0.0001 (Interlab	<0.0002	<0.0001	0	<0.0002	<0.0001	0	<0.0002	0.0001	0	<0.0002	0.0002	0	<0.0002	<0.0001	0
	Chromium (III+VI) (Filtered)	mg/L	0.001	0.001	0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	0.001	0
	Copper (Filtered)	mg/L	0.001	**0.008**	**0.002**	**120**	**0.027**	**0.002**	**172**	**0.019**	**<0.001**	**180**	**0.002**	**0.037**	**179**	**0.029**	**0.004**	**152**
	Lead (Filtered)	mg/L	0.001	<0.001	<0.001	0	**0.003**	**<0.001**	**100**	0.002	<0.001	67	**<0.001**	**0.004**	**120**	0.002	<0.001	67
	Mercury (Filtered)	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
	Nickel (Filtered)	mg/L	0.001	**0.006**	**0.002**	**100**	**0.014**	**0.008**	**55**	0.011	0.01	10	0.009	0.012	29	0.01	0.007	35
	Zinc (Filtered)	mg/L	0.005	**0.027**	**<0.005**	**138**	**0.067**	**0.016**	**123**	0.04	0.024	50	**0.022**	**0.077**	**111**	**0.034**	**0.005**	**149**
BTEXN	Benzene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Toluene	µg/l	1 : 2 (Interlab)	<1	<2	0	<1	<2	0	2	<2	0	<1	<2	0	<1	<2	0
	Ethylbenzene	µg/l	1 : 2 (Interlab)	<1	<2	0	<1	<2	0	<1	<2	0	<1	<2	0	<1	<2	0
	Xylene (o)	µg/l	1 : 2 (Interlab)	<1	<2	0	<1	<2	0	<1	<2	0	<1	<2	0	<1	<2	0
	Xylene (m & p)	µg/l	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
	Xylene Total	µg/l	3 : 2 (Interlab)	<3	<2	0	<3	<2	0	<3	<2	0	<3	<2	0	<3	<2	0
	Naphthalene (BTEXN)	µg/l	10 : 5 (Interlab)										<10	<5	0			
TRH - NEPM 2013	F1 (C6-C10 minus BTEX)	µg/l	20	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0
	C6-C10 Fraction	µg/l	20	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0
	F2 (>C10-C16 minus Naphthal	µg/l	50 : 100 (Interlab)	<50	<100	0	**730**	**<100**	**152**	<50	<100	0	<50	<100	0	<50	<100	0
	>C10-C16 Fraction	µg/l	50 : 100 (Interlab)	<50	<100	0	**730**	**<100**	**152**	<50	<100	0	<50	<100	0	<50	<100	0
	F3 (>C16-C34 Fraction)	µg/l	100	<100	220	75	**1100**	**<100**	**167**	<100	<100	0	<100	<100	0	<100	<100	0
	F4 (>C34-C40 Fraction)	µg/l	100	<100	<100	0	200	<100	67	<100	<100	0	<100	<100	0	<100	<100	0
	>C10-C40 (Sum of Total)	µg/l	100	<100	220	75	**2030**	**<100**	**181**	<100	<100	0	<100	<100	0	<100	<100	0
TRH - NEPM 1999	C6-C9 Fraction	µg/l	20	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0
	C10-C14 Fraction	µg/l	50	<50	<50	0	**620**	**<50**	**170**	<50	<50	0	<50	<50	0	<50	<50	0
	C15-C28 Fraction	µg/l	100	<100	210	71	**1000**	**<100**	**164**	<100	<100	0	<100	<100	0	<100	<100	0
	C29-C36 Fraction	µg/l	100 : 50 (Interlab)	<100	<50	0	**300**	**<50**	**143**	<100	<50	0	<100	<50	0	<100	<50	0
	C10-C36 (Sum of Total)	µg/l	100 : 50 (Interlab)	<100	210	71	**1920**	**<50**	**190**	<100	<50	0	<100	<50	0	<100	<50	0
PAHs	Acenaphthene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Acenaphthylene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Anthracene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Benz(a)anthracene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Benzo(a) pyrene	µg/l	1 : 0.5 (Interlab)	<1	<0.5	0	<1	<0.5	0	<1	<0.5	0	<1	<0.5	0	<1	<0.5	0
	Benzo[b+j]fluoranthene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Benzo(k)fluoranthene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Benzo(g,h,i)perylene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Chrysene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Dibenz(a,h)anthracene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Fluoranthene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Fluorene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Indeno(1,2,3-c,d)pyrene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Naphthalene-PAH	µg/l	1 : 5 (Interlab)	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0			
	Phenanthrene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Pyrene	µg/l	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	PAHs (Sum of total) - Lab calc	µg/l	1 : 0.5 (Interlab)	<1	<0.5	0	<1	<0.5	0	<1	<0.5	0	<1	<0.5	0	<1	<0.5	0

*RPDs have only been considered where a concentration is greater than 1 times the EQL
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 80 (1-10 x
***Interlab Duplicates are matched on a per compound basis as methods vary between la

Appendix B
Table 6 Summary of field rinsate samples and trip blank samples analytical results

Field Blanks (water)
Filter: [Sampled_Date_Time] >= '01 Sep 2018' and [Sampled_Date

Lab Report Number	634274	624838	616629	629922	641720	636542	634274	624838	616629	629922	641720	636542
Field ID	RB01	RB01	RB01	RB01	RB01	RB01	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
Sampled_Date/Time	17/12/2018	25/10/2018	6/09/2018	26/11/2018	20/02/2019	17/01/2019	17/12/2018	25/10/2018	6/09/2018	26/11/2018	20/02/2019	17/01/2019
Sample Type	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B
Chem_Group	**ChemName**	**Units**	**EQL**														
BTEXN	Benzene	µg/l	1							<1	<1	<1	<1	<1	<1
	Toluene	µg/l	1							<1	<1	<1	<1	<1	<1
	Ethylbenzene	µg/l	1							<1	<1	<1	<1	<1	<1
	Xylene (o)	µg/l	1							<1	<1	<1	<1	<1	<1
	Xylene (m & p)	µg/l	2							<2	<2	<2	<2	<2	<2
	Xylene Total	µg/l	2							<3	<3	<3	<3	<3	<3
	Naphthalene (BTEXN)	µg/L	5							<10	<10	<10	<10	<10	<10
	BTEX (Sum of Total) - Lab Calc	µg/L	1												
Herbicides	Dinoseb	µg/l	100												
Inorganics	Cyanide (Total)	mg/L	0.005												
Iron speciation	Ferrous Iron	mg/L	0.05												
Major Ions	Calcium	mg/L	0.5												
	Magnesium	mg/L	0.5												
	Potassium	mg/L	0.5												
	Sodium	mg/L	0.5												
	Chloride	mg/L	1												
	Sulfate	mg/L	5												
Metals	Arsenic	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001						
	Arsenic (Filtered)	mg/L	0.001												
	Cadmium	mg/L	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002						
	Cadmium (Filtered)	mg/L	0.0001												
	Chromium (III+VI)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001						
	Chromium (III+VI) (Filtered)	mg/L	0.001												
	Copper	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001						
	Copper (Filtered)	mg/L	0.001												
	Lead	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001						
	Lead (Filtered)	mg/L	0.001												
	Manganese (Filtered)	mg/L	0.005												
	Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001						
	Mercury (Filtered)	mg/L	0.0001												
	Nickel	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001						
	Nickel (Filtered)	mg/L	0.001												
	Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005						
	Zinc (Filtered)	mg/L	0.005												
TRH - NEPM 1999	C6-C9 Fraction	µg/l	20							<20	<20	<20	<20	<20	<20
	C10-C14 Fraction	µg/L	50												
	C15-C28 Fraction	µg/l	100												
	C29-C36 Fraction	µg/l	50												
	C10-C36 (Sum of Total)	µg/l	50												
TRH - NEPM 1999 - SG Clean	C10-C14 SG Cleanup	µg/l	50												
	C15-C28 SG Cleanup	µg/l	100												
	C29-C36 SG Cleanup	µg/l	100												
	C10-C36 (sum) SG Cleanup	µg/l	100												
TRH - NEPM 2013	F1 (C6-C10 minus BTEX)	µg/l	20							<20	<20	<20	<20	<20	<20
	C6-C10 Fraction	µg/l	20							<20	<20	<20	<20	<20	<20
	F2 (>C10-C16 minus Naphthalene)	µg/l	50												
	>C10-C16 Fraction	µg/l	50												
	F3 (>C16-C34 Fraction)	µg/l	100												
	F4 (>C34-C40 Fraction)	µg/l	100												
	>C10-C40 (Sum of Total)	µg/l	100												

Filter: [Sampled_Date_Time] >= '01 Sep 2018' and [Sampled_Date_Time] <= '28 Feb 2019'
G:\21\27234\Tech\Design\Groundwater baseline monitoring\Edsat results tables\CSM_QAQC_Tables_Sept18-Feb19.xlsx

Appendix B

Table 7 Groundwater aggressivity comparison table - steel piles

Monitoring well ID	sampling dates	pH	chloride (mg/L)	soil condition A	soil condition B	aquifer
				high permerability soil (sand, gravel) that are in groundwater	low permeability soils (silt and clay) or all soils above groundwater	Table 6.5.2 C in AS2159
SRT-BH039	7/09/2018	11.83	28	non-aggressive	non-aggressive	deep
SRT-BH039	25/10/2018	12.07	45	non-aggressive	non-aggressive	deep
SRT-BH047	6/09/2018	7.08	27	non-aggressive	non-aggressive	shallow
SRT-BH047	25/10/2018	7.51	25	non-aggressive	non-aggressive	shallow
SRT_BH047	26/11/2018	7.29	39	non-aggressive	non-aggressive	shallow
SRT_BH047	18/12/2018	7.22	33	non-aggressive	non-aggressive	shallow
SRT_BH047	17/01/2019	7.22	23	non-aggressive	non-aggressive	shallow
SRT_BH047	20/02/2019	8.73	26	non-aggressive	non-aggressive	shallow
SRT-BH048	6/09/2018	5.27	34	non-aggressive	non-aggressive	shallow
SRT-BH048	25/10/2018	5.44	34	non-aggressive	non-aggressive	shallow
SRT_BH048	26/11/2018	5.93	51	non-aggressive	non-aggressive	shallow
SRT-BH052	25/10/2018	5.96	22	non-aggressive	non-aggressive	shallow
SRT_BH052	26/11/2018	6.4	41	non-aggressive	non-aggressive	shallow
SRT_BH052	18/12/2018	6.17	43	non-aggressive	non-aggressive	shallow
SRT_BH052	17/01/2019	6.24	42	non-aggressive	non-aggressive	shallow
SRT_BH052	20/02/2019	7.14	42	non-aggressive	non-aggressive	shallow
SRT-BH053	6/09/2018	6	32	non-aggressive	non-aggressive	shallow
SRT-BH053	25/10/2018	6.34	26	non-aggressive	non-aggressive	shallow
SRT-BH059	25/10/2018	6.95	13	non-aggressive	non-aggressive	shallow
SRT_BH059	26/11/2018	6.72	34	non-aggressive	non-aggressive	shallow
SRT_BH059	17/12/2018	7.06	10	non-aggressive	non-aggressive	shallow
SRT_BH059	18/01/2019	7.02	8.1	non-aggressive	non-aggressive	shallow
SRT_BH059	20/02/2019	7.07	11	non-aggressive	non-aggressive	shallow
SRT-BH063	6/09/2018	6.72	72	non-aggressive	non-aggressive	offsite deep
SRT-BH063	25/10/2018	6.6	53	non-aggressive	non-aggressive	offsite deep
SRT_BH063	26/11/2018	6.51	68	non-aggressive	non-aggressive	offsite deep
SRT_BH063	17/12/2018	6.64	76	non-aggressive	non-aggressive	offsite deep
SRT_BH063	17/01/2019	6.84	68	non-aggressive	non-aggressive	offsite deep
SRT_BH063	21/02/2019	6.61	71	non-aggressive	non-aggressive	offsite deep
SRT-BH064	6/09/2018	9.81	23	non-aggressive	non-aggressive	shallow
SRT-BH082	25/10/2018	5.14	16	non-aggressive	non-aggressive	shallow
SRT_BH082	26/11/2018	5.44	38	non-aggressive	non-aggressive	shallow
SRT-CBH001	6/09/2018	5.02	17	non-aggressive	non-aggressive	shallow
SRT-CBH001	25/10/2018	5.07	17	non-aggressive	non-aggressive	shallow
SRT_CBH001	26/11/2018	6.19	35	non-aggressive	non-aggressive	shallow
SRT-CBH007	6/09/2018	5.59	9.7	non-aggressive	non-aggressive	shallow
SRT-CBH015	7/09/2018	5.24	11	non-aggressive	non-aggressive	shallow
SRT-CBH015	25/10/2018	5.59	9.8	non-aggressive	non-aggressive	shallow
SRT_CBH015	26/11/2018	5.53	11	non-aggressive	non-aggressive	shallow
SRT_CBH015	17/12/2018	5.44	12	non-aggressive	non-aggressive	shallow
SRT_CBH015	18/01/2019	5.4	12	non-aggressive	non-aggressive	shallow
SRT_CBH015	20/02/2019	5.44	13	non-aggressive	non-aggressive	shallow
SRT-CBH017	7/09/2018	6.73	9.7	non-aggressive	non-aggressive	shallow
SRT-CBH017	25/10/2018	6.08	8.8	non-aggressive	non-aggressive	shallow
SRT_CBH017	26/11/2018	5.9	16	non-aggressive	non-aggressive	shallow
SRT_CBH017	17/12/2018	6.01	11	non-aggressive	non-aggressive	shallow
SRT_CBH017	18/01/2019	5.93	7.9	non-aggressive	non-aggressive	shallow
SRT_CBH017	20/02/2019	5.93	15	non-aggressive	non-aggressive	shallow

Appendix B

Table 8 Groundwate Aggressivity Comparison Table - Concrete Piles

Monitoring well ID	sampling dates	Sulfate (mg/L)	pH	chloride (mg/L)	soil condition A	soil condition B	aquifer
					high permerability soil (sand, gravel) that are in groundwater	low permeability soils (silt and clay) or all soils above groundwater	Table 6.4.2 C in AS2159
SRT-BH039	7/09/2018	940	11.83	28	mild	non-aggressive	deep
SRT-BH039	25/10/2018	720	12.07	45	mild	non-aggressive	deep
SRT-BH047	6/09/2018	7.6	7.08	27	mild	non-aggressive	shallow
SRT-BH047	25/10/2018	14	7.51	25	mild	non-aggressive	shallow
SRT_BH047	26/11/2018	12	7.29	39	mild	non-aggressive	shallow
SRT_BH047	18/12/2018	16	7.22	33	mild	non-aggressive	shallow
SRT_BH047	17/01/2019	11	7.22	23	mild	non-aggressive	shallow
SRT_BH047	20/02/2019	12	8.73	26	mild	non-aggressive	shallow
SRT-BH048	6/09/2018	47	**5.27**	34	moderate	mild	shallow
SRT-BH048	25/10/2018	48	**5.44**	34	moderate	mild	shallow
SRT_BH048	26/11/2018	49	5.93	51	mild	non-aggressive	shallow
SRT-BH052	25/10/2018	20	5.96	22	mild	non-aggressive	shallow
SRT_BH052	26/11/2018	27	6.4	41	mild	non-aggressive	shallow
SRT_BH052	18/12/2018	18	6.17	43	mild	non-aggressive	shallow
SRT_BH052	17/01/2019	27	6.24	42	mild	non-aggressive	shallow
SRT_BH052	20/02/2019	28	7.14	42	mild	non-aggressive	shallow
SRT-BH053	6/09/2018	28	6	32	mild	non-aggressive	shallow
SRT-BH053	25/10/2018	27	6.34	26	mild	non-aggressive	shallow
SRT-BH059	25/10/2018	17	6.95	13	mild	non-aggressive	shallow
SRT_BH059	26/11/2018	13	6.72	34	mild	non-aggressive	shallow
SRT_BH059	17/12/2018	24	7.06	10	mild	non-aggressive	shallow
SRT_BH059	18/01/2019	13	7.02	8.1	mild	non-aggressive	shallow
SRT_BH059	20/02/2019	12	7.07	11	mild	non-aggressive	shallow
SRT-BH063	6/09/2018	45	6.72	72	mild	non-aggressive	offsite deep
SRT-BH063	25/10/2018	53	6.6	53	mild	non-aggressive	offsite deep
SRT_BH063	26/11/2018	52	6.51	68	mild	non-aggressive	offsite deep
SRT_BH063	17/12/2018	56	6.64	76	mild	non-aggressive	offsite deep
SRT_BH063	17/01/2019	52	6.84	68	mild	non-aggressive	offsite deep
SRT_BH063	21/02/2019	61	6.61	71	mild	non-aggressive	offsite deep
SRT-BH064	6/09/2018	58	9.81	23	mild	non-aggressive	shallow
SRT-BH082	25/10/2018	36	**5.14**	16	moderate	mild	shallow
SRT_BH082	26/11/2018	31	**5.44**	38	moderate	mild	shallow
SRT-CBH001	6/09/2018	34	**5.02**	17	moderate	mild	shallow
SRT-CBH001	25/10/2018	32	**5.07**	17	moderate	mild	shallow
SRT_CBH001	26/11/2018	32	6.19	35	mild	non-aggressive	shallow
SRT-CBH007	6/09/2018	46	5.59	9.7	mild	non-aggressive	shallow
SRT-CBH015	7/09/2018	79	**5.24**	11	moderate	mild	shallow
SRT-CBH015	25/10/2018	49	5.59	9.8	mild	non-aggressive	shallow
SRT_CBH015	26/11/2018	45	5.53	11	mild	non-aggressive	shallow
SRT_CBH015	17/12/2018	52	**5.44**	12	moderate	mild	shallow
SRT_CBH015	18/01/2019	47	**5.4**	12	moderate	mild	shallow
SRT_CBH015	20/02/2019	49	**5.44**	13	moderate	mild	shallow
SRT-CBH017	7/09/2018	21	6.73	9.7	mild	non-aggressive	shallow
SRT-CBH017	25/10/2018	19	6.08	8.8	mild	non-aggressive	shallow
SRT_CBH017	26/11/2018	18	5.9	16	mild	non-aggressive	shallow
SRT_CBH017	17/12/2018	17	6.01	11	mild	non-aggressive	shallow
SRT_CBH017	18/01/2019	12	5.93	7.9	mild	non-aggressive	shallow
SRT_CBH017	20/02/2019	16	5.93	15	mild	non-aggressive	shallow

Appendix C Field equipment calibration sheets

Oil / Water Interface Meter

Instrument Geotech Interface Meter (30M)
Serial No. 4253

airmet
Air-Met Scientific Pty Ltd
1300 137 067

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

Certificate of Calibration

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

Calibrated by: Sarah Lian **Sarah Lian**

Calibration date: **5/09/2018**

Next calibration due: **4/11/2018**

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 12D100012

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. pH 10.00		pH 10.00		320322	pH 9.64
2. pH 7.00		pH 7.00		307928	pH 7.01
3. pH 4.00		pH 4.00		316086	pH 4.22
4. mV		231.8mV		311901/311902	232.1mV
5. EC		2.76mS		306341	2.75mS
6. D.O		0.00ppm		5928	0.00ppm
7. Temp		21.4°C		MultiTherm	21°C

Calibrated by: Sarah Lian **Sarah Lian**

Calibration date: **5/09/2018**

Next calibration due: **6/10/2018**

Multi Parameter Water Meter

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Instrument YSI Quatro Pro Plus
Serial No. 12D100011

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

Certificate of Calibration

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

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 7.00		pH 7.00		307928	pH 7.01
2. pH 4.00		pH 4.00		316086	pH 4.15
3. pH 10.00		pH 10.00		320322	pH 9.88
3. mV		231.8mV		320334/311902	231.9mV
4. EC		2.76mS		306341	2.74mS
6. D.O		0.00 ppm		5928	0.00ppm
7. Temp		21.6°C		MultiTherm	21.2°C

Calibrated by: Sarah Lian **Sarah Lian**

Calibration date: **24/10/2018**

Next calibration due: **24/11/2018**

Oil / Water Interface Meter

Instrument Interface Meter (30M)
Serial No. 122 009747-1

airmet
Air-Met Scientific Pty Ltd
1300 137 067

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

Certificate of Calibration

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

Calibrated by: Sarah Lian **Sarah Lian**

Calibration date: **23/10/2018**

Next calibration due: **22/12/2018**

Oil / Water Interface Meter

airmet

Air-Met Scientific Pty Ltd
1300 137 067

Instrument Geotech Interface Meter (30M)
Serial No. 3985

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

Certificate of Calibration

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

Calibrated by: Sarah Lian **Sarah Lian**

Calibration date: **22/11/2018**

Next calibration due: **21/01/2019**

Multi Parameter Water Meter

Instrument **YSI Quatro Pro Plus**
Serial No. **11C100763**

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. pH 7.00		pH 7.00		317272	pH 6.91
2. pH 4.00		pH 4.00		320612	pH 4.30
3. pH 10.00		pH 10.00		324189	pH 9.45
3. mV		231.8mV		325420/324357	231.5mV
4. EC		2.76 mS		320325	2.75mS
5. D.O		0.00ppm		10175	0.00ppm
6. Temp		21°C		MultiTherm	20.8°C

Calibrated by: Sarah Lian **Sarah Lian**

Calibration date: **23/11/2018**

Next calibration due: **23/12/2018**

Oil / Water Interface Meter

Instrument Geotech Interface Meter (30M)
Serial No. 4442

airmet
Air-Met Scientific Pty Ltd
1300 137 067

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

Certificate of Calibration

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

Calibrated by: Alinta **Alinta Furnell**

Calibration date: **12/12/2018**

Next calibration due: **10/02/2019**

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 18J104331

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. pH 10.00		pH 10.00		318140	pH 9.89
2. pH 7.00		pH 7.00		317272	pH 7.03
3. pH 4.00		pH 4.00		320612	pH 4.06
4. mV		231.8mV		325420/324357	231.9mV
5. EC		2.76mS		320326	2.74mS
6. D.O		0.00ppm		10175	0.00ppm
7. Temp		20.7°C		MultiTherm	21°C

Calibrated by: Sarah Lian **Sarah Lian**

Calibration date: **13/12/2018**

Next calibration due: **12/01/2019**

Oil / Water Interface Meter

Instrument Geotech Interface Meter (30M)
Serial No. 3985

airmet
Air-Met Scientific Pty Ltd
1300 137 067

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

Certificate of Calibration

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

Calibrated by: Maria Orlova

Calibration date: 15/01/2019

Next calibration due: 16/03/2019

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 18J104315

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. pH 10.00		pH 10.00		324189	pH 9.50
2. pH 7.00		pH 7.00		317272	pH 6.98
3. pH 4.00		pH 4.00		320612	pH 4.17
4. mV		229.6mV		325420/325421	229.6mV
5. EC		2.76mS		320325	2.75mS
6. D.O		0.00ppm		10175	0.00ppm
7. Temp		21.5°C		MultiTherm	21.7°C

Calibrated by: Sarah Lian

Calibration date: **16/01/2019**

Next calibration due: **15/02/2019**

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 18J104341

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. pH 10.00		pH 10.00		324189	pH 9.53
2. pH 7.00		pH 7.00		320613	pH 7.01
3. pH 4.00		pH 4.00		324985	pH 4.04
4. mV		231.8mV		325931/325421	231.9mV
5. EC		2.76mS		324347	2.76mS
6. D.O		0.00ppm		10175	0.00ppm
7. Temp		21°C		MultiTherm	20.9°C

Calibrated by: Maria Orlova

Calibration date: 19/02/2019

Next calibration due: 21/03/2019

Oil / Water Interface Meter

Instrument Geotech Interface Meter (60M)
Serial No. 3911

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Compartment	✓	
	Capacity above 7.9v	✓	
Probe	Cleaned/Decon.	✓	
	Operation	✓	
Connectors	Condition	✓	
		✓	
Tape Check	Cleaned	✓	
Connectors	Checked for cuts	✓	
Instrument Test	At surface level	✓	

Certificate of Calibration

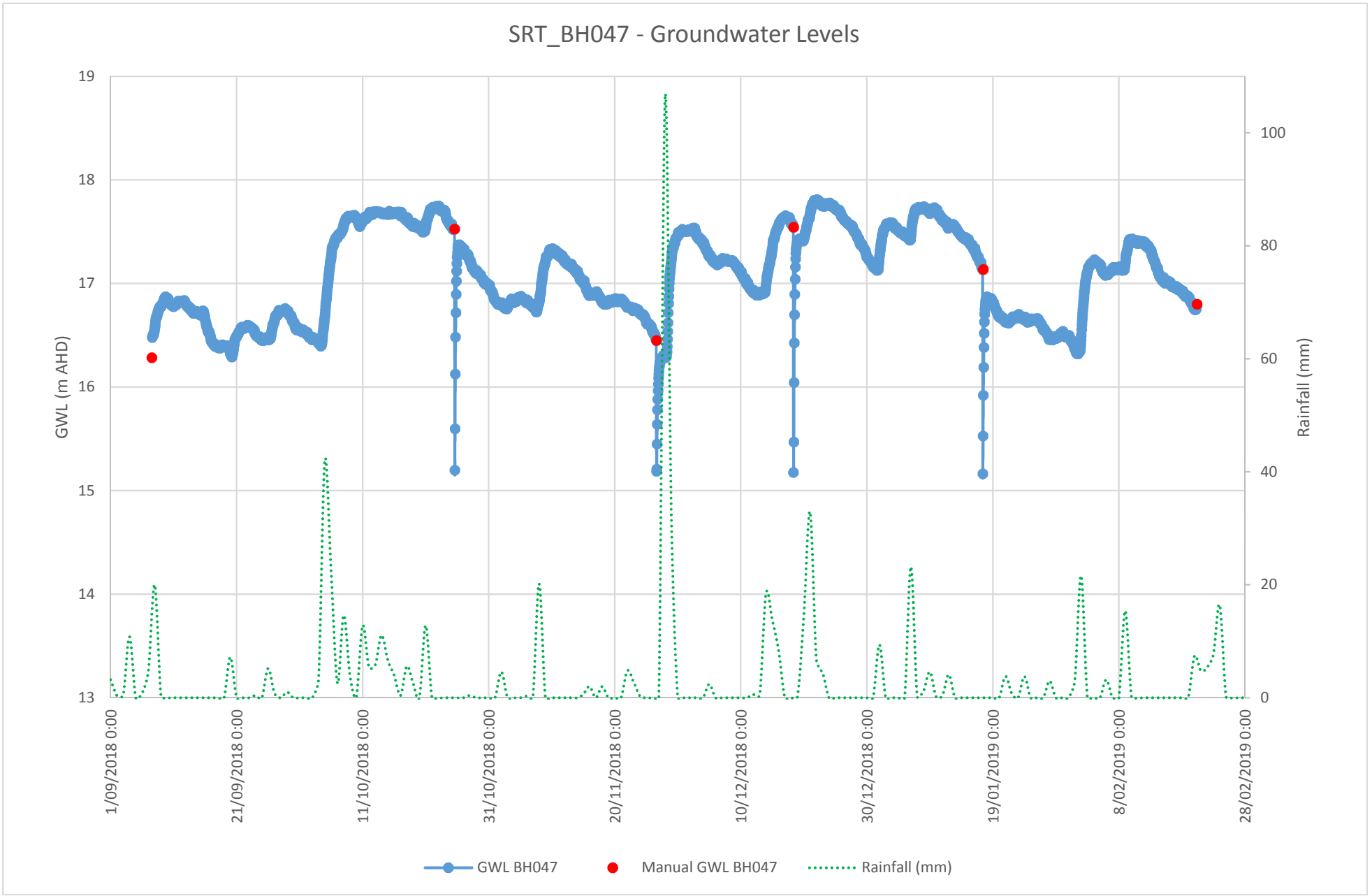
This is to certify that the above instrument has been cleaned and tested.

Calibrated by: Alinta **Alinta Furnell**

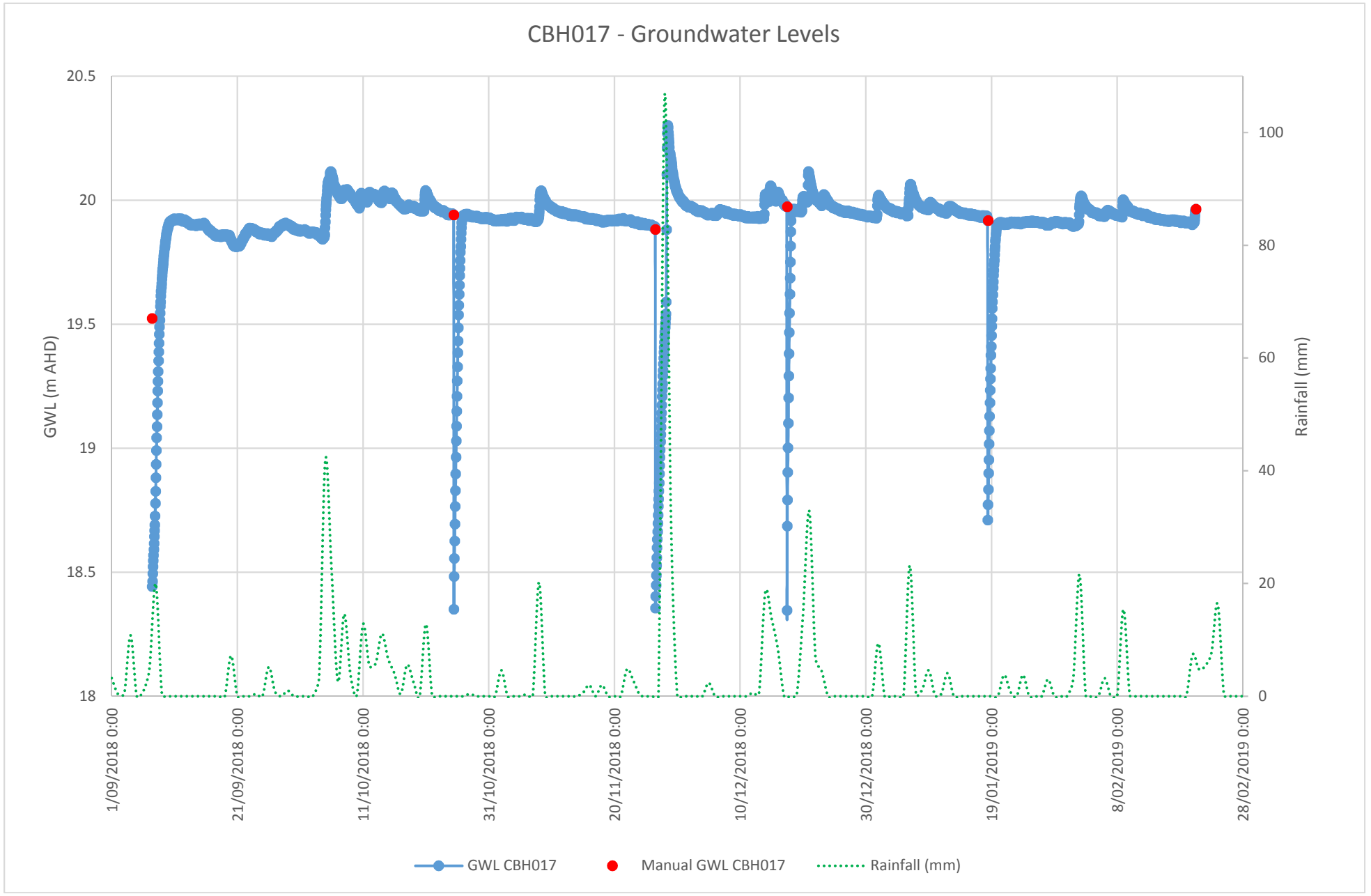
Calibration date: **06-Feb-19**

Next calibration due: **07-Apr-19**

Appendix D Groundwater level graphs (based on data logger information)


SRT_BH047 - Groundwater Levels
GWL (m AHD)
Rainfall (mm)
19
18
17
16
15
14
13
100
80
60
40
20
0
1/09/2018 0:00
21/09/2018 0:00
11/10/2018 0:00
31/10/2018 0:00
20/11/2018 0:00
10/12/2018 0:00
30/12/2018 0:00
19/01/2019 0:00
8/02/2019 0:00
28/02/2019 0:00
GWL BH047
Manual GWL BH047
Rainfall (mm)


SRT_BH063 - Groundwater Levels
GWL (m AHD)
15.5
15
14.5
14
13.5
13
12.5
12
11.5
11
Rainfall (mm)
100
80
60
40
20
0
1/09/2018 0:00
21/09/2018 0:00
11/10/2018 0:00
31/10/2018 0:00
20/11/2018 0:00
10/12/2018 0:00
30/12/2018 0:00
19/01/2019 0:00
8/02/2019 0:00
28/02/2019 0:00
GWL BH063
Manual GWL BH063
Rainfall (mm)


CBH017 - Groundwater Levels
GWL (m AHD)
Rainfall (mm)
20.5
20
19.5
19
18.5
18
100
80
60
40
20
0
1/09/2018 0:00
21/09/2018 0:00
11/10/2018 0:00
31/10/2018 0:00
20/11/2018 0:00
10/12/2018 0:00
30/12/2018 0:00
19/01/2019 0:00
8/02/2019 0:00
28/02/2019 0:00
GWL CBH017
Manual GWL CBH017
Rainfall (mm)

Appendix E Groundwater Purging Sheets

Purging and Sampling Record

Bore ID: SRT_BH039

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Geocentral Micropurge	SWL: 17.085 m — Logic Check: ✓
Project: Central Station Main Works	Sample Method: "	Screen: From:..... to..... m — Stick Up: ..... m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: ✓ — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth:.....m	Ref.datum: ..... — Well Cap Secure? Yes
Date: 7/9/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 22.62 m
Round September 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm.....)	Elec.Cond (mS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
8:37	1	18.09	3.59	3216	11.91	-134.9	20.2		light brown, turbid, no odour, no sheen
8:39	2	18.51	3.79	3454	11.86	-134.5	20.1		clear, no colour, no odour, no sheen.
8:43	3	18.96	4.16	3124	11.85	-138.6	20.1		" "
8:46	4	19.35	4.25	3121	11.84	-139.6	20.1		" "
8:49	5	19.66	4.12	3114	11.83	-142	20.0		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Data logger in at 9:15. SWL = 22.15 mbtoc QA02

7/9/18

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

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Purging and Sampling Record

Bore ID: SRT_BH047

Job Information		Sampling Information		Bore Information	
Client:	Laing O'Rourke / Sydney Metro	Purge Method:	Peri	SWL: 5.026 m	Logic Check: /
Project:	Central Station Main Works	Sample Method:	Peri	Screen: From: ..... to: ..... m	Stick Up: ..... m
Proj. No.:	21-27234	WQ Meter Type:	YSI	NAPL Check: /	Bore Diam.: 50 mm
Sampler:	T. Nham / T. Frederick	Flow Cell: Y / N	Pump Depth: 6.8 m	Ref.datum:	Well Cap Secure? Yes
Date:	6/9/18	WLevel Meter Type:	Dip / Fox / Int.Fce / Gge	Bore Depth: 6.96 m	
Round	September 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)			

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm..)	Elec.Cond (us/cm.)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
1:32	1	5.56	0.77	482.7	7.01	-92.3	19.6		no colour, ~~no~~ clear, no odour, no sheen
1:37	2	5.94	2.14	433.3	7.08	-89.5	19.6		" "
		Very little water, low recharge, sample taken							

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Metals filtered, 7 bottles (some bottles half full)

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_BH048

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 4.825 m — Logic Check: —
Project: Central Station Main Works	Sample Method: Peri	Screen: From: — to — m — Stick Up: — m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: — — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 6.1 m	Ref.datum: — — Well Cap Secure? Yes
Date: 6/9/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.39 m
Round September 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (.mg/L...)	Elec.Cond (µS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings).		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	*-*		
2:03	1	5.20	2.92	234.6	5.49	-48.0	19.8		clear, no colour, no odour, no sheen.
2:06	2	5.40	2.91	228.6	5.27	-52.1	19.9		" "
			Poor recharge, sed sample taken						

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Metals filtered, 7 bottles. Logger in at 2:14 7/9/18 SWL = 4.540

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

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Purging and Sampling Record

Bore ID: SRT_BH053

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 5.550 m Logic Check: —
Project: Central Station Main Works	Sample Method: Peri	Screen: From:—to— m Stick Up: — m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check:— Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 9.8 m	Ref.datum: Well Cap Secure? Yes
Date: 6/9/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 9.91 m
Round September 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm....)	Elec.Cond (uS/cm.)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings)		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
2.31	1	5.77	0.15	363.1	6.31	-166.7	19.8		clear, no colour, no sheen, no odour
2.35	2	5.91	0.07	329.2	6.24	-203.6	19.9		" "
2.39	3	6.10	0.05	294.0	6.15	-213.9	19.9		clear/cloudy, no colour, no sheen, no odour
2.42	4	6.24	0.05	270.9	6.08	-213.5	19.9		" "
2.46	5	6.44	0.13	249.7	6.00	-208.6	19.8		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Metals filtered, 7 bottles.

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_BH055

Job Information	*Sampling Information*	*Bore Information*
Client: Laing O'Rourke / Sydney Metro	Purge Method: Dry	SWL: Dry m — Logic Check: /
Project: Central Station Main Works	Sample Method:	Screen: From: / to m — Stick Up: / m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: / — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: m	Ref.datum: / — Well Cap Secure? Yes
Date: 7/9/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 3.475 m
Round September 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (.....)	Elec.Cond (.....)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
				Dry					Dry

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Dry

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_BH064

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri Pump	SWL: 1.710 m
Project: Central Station Main Works	Sample Method: Peri Pump	Screen: From: / to: / m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: —
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N	Pump Depth: 4.2 m
Date: 6/9/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Ref.datum: —
Round September 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	Bore Depth: 4.46 m
		Logic Check: —
		Stick Up: — m
		Bore Diam.: 50 mm
		Well Cap Secure? Yes

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm)	Elec.Cond (µS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
9:00	1	1.87	1.13	343.6	9.79	-147.1	19.3		light brown, cloudy, no odour, no sheen
9:04	2	2.20	1.11	342.6	9.80	-157.3	19.2		No colour, clear, no odour, no sheen
9:08	3	2.44	1.25	346.3	9.94	-161.2	19.0		" "
9:12	4	2.59	1.82	345.3	9.93	-151.5	18.9		" "
9:16	5	2.75	1.55	342.6	9.81	-150.2	19.0		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Metals filtered 7 bottles Logger in 12:25 7/9/18 SWL = 2.52 mbtoc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

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Purging and Sampling Record

Bore ID: SRT_BH063

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Geocontrol Micropurge II	SWL: 10.890 m Logic Check: —
Project: Central Station Main Works	Sample Method:	Screen: From: — to: — m Stick Up: — m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 14.5 m	Ref.datum: — Well Cap Secure? Yes
Date: 6/9/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 14.66 m
Round September 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm..)	Elec.Cond (uS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
3.54	1	11.31	3.56	850	6.99	-57	20.9		grey, cloudy, sediment, no odour, slight sheen (oil)
3.58	2	11.63	3.63	795	6.66	-66	21.2		clear, no colour, no odour, no sheen.
4:01	3	11.89	4.00	793	6.69	-67	21.2		" "
4:04	4	12.17	4.26	795	6.71	-68.3	21.3		" "
4:07	5	12.34	4.35	795	6.72	-68.2	21.2		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Metals filtered, 7 bottles. Logger in at 11:48. SWL = (7/9/18) 11.55m Ltoc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_CBH001

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 6.245 m Logic Check: —
Project: Central Station Main Works	Sample Method: Peri	Screen: From: — to: — m Stick Up: — m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 7.8 m	Ref.datum: — Well Cap Secure? Yes
Date: 6/9/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 8.04 m
Round September 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm)	Elec.Cond (µS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
11:41	1	6.53	4.38	214.5	4.54	7.9	20.6		Clear, no colour, no odour, no sheen.
11:45	2	6.74	3.60	202.5	4.69	-4.6	20.5		" "
11:49	3	6.86	2.72	194.3	4.88	-27.5	20.6		" "
11:52	4	6.99	2.44	194.8	4.93	-41.4	20.6		" "
11:57	5	7.12	2.52	197.2	5.02	-44.9	20.6		

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Metals filtered, 7 bottles +7

QA01

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_CBH007

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 5.870 m — Logic Check: /
Project: Central Station Main Works	Sample Method: Peri	Screen: From: / to: m — Stick Up: m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: / — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 6.5 m	Ref.datum: — Well Cap Secure? Yes
Date: 6/9/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.705 m
Round September 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm)	Elec.Cond (us/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
10:24	–	–	2.214	174.4	5.59	-25.5	19.8		clear, no colour, no odour, no sheen
		Very little water, grab sample taken							

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Metals filtered, 7 bottles.

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

GHD | MANAGEMENT ENGINEERING ENVIRONMENT

Purging and Sampling Record

Bore ID: SRT_CDH015

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 3.868 m — Logic Check: /
Project: Central Station Main Works	Sample Method: Peri	Screen: From: / to: / m — Stick Up: / m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: / — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 5.8 m	Ref.datum: / — Well Cap Secure? Yes
Date: 7/9/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 5.92 m
Round September 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm...)	Elec.Cond (uS/cm...)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
1:24	1	4.12	0.74	242.4	5.72	-75.3	20.2		clear, no colour, no odour, no sheen
1:28	2	4.20	1.15	244.7	5.63	-72.3	20.1		" "
1:31	3	4.27	1.08	239.3	5.53	-80.9	20.1		" "
1:34	4	4.32	0.61	228.5	5.43	-98.2	20.1		" "
1.38	5	4.39	0.44	219.8	5.43	-129.0	20.1		" "
1.43	6	4.45	0.58	210.6	5.35	-154.9	20.1		" "
1.47	7	4.53	0.74	200.8	5.26	-163.0	20.1		" "
1.51	8	4.58	0.87	202.0	5.24	-169.1	20.1		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRL CBH017

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method:	SWL: 3.297 m Logic Check: —
Project: Central Station Main Works	Sample Method:	Screen: From:.....to..... m Stick Up: — m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check:..... Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 4.8 m	Ref.datum: ..... Well Cap Secure? Yes
Date: 7/9/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 4.95 m
Round September 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (mg/L)	Elec.Cond (µS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
10:23	1	3.54	1.64	214.6	7.17	-84.7	19.8		clear, no colour, no odour, no sheen
10:27	2	3.75	2.28	204.0	6.90	-81.6	19.8		" "
10:30	3	3.96	1.77	195.7	6.73	-85.2	19.7		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Logger in at 10:46. CWL = 4.41 mbtoc

7/9/18

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_BH035

Job Information
- Client: Laing O'Rourke / Sydney Metro
- Project: Central Station Main Works
- Proj. No.: 21-27234
- Sampler: T. Nham / T. Frederick
- Date: 26/10/18
- Round October 2018

Sampling Information
- Purge Method: Geocentral Micropurger
- Sample Method: "
- WQ Meter Type: YSI
- Flow Cell: Y / N Pump Depth: 22 m
- WLevel Meter Type: Dip / Fox / Int.Fce / Gge
- Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information
- SWL: 16.317 m
- Screen: From: ..... to ..... m
- NAPL Check: .....
- Ref.datum: .....
- Bore Depth: 22.52 m
- Logic Check: /
- Stick Up: ..... m
- Bore Diam.: 50 mm
- Well Cap Secure? /

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm..)	Elec.Cond (uS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
10.26	1	16.95	0.64	4021	11.99	-230.5	20.6		no colour, clear, no odour, no sheen.
10.32	2	17.51	0.34	4047	12.01	-237.2	21.0		" "
10.38	3	18.00	0.23	4390	12.05	-241.9	21.1		" "
10.46	4	18.90	0.19	4286	12.07	-244.9	21.0		" "

Field QA Checks:
Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

8 Bottles. Data logger downloaded. DUP: QA02

Metals + Fe2+ filtered

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT-BH047

Job Information

Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / T. Frederick
Date: 25/10/18
Round October 2018

Sampling Information

Purge Method: Peri
Sample Method: Peri
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 6.5 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL: 3.784 m Logic Check: /
Screen: From: / to m Stick Up: m
NAPL Check: / Bore Diam.: 50 mm
Ref.datum: / Well Cap Secure? Yes
Bore Depth: 6.91 m

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (.p.p.m.)	Elec.Cond (uS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		stable	+/- 10%	+/- 3%	+/- 0.05 pH	+/- 10 mV	-		
2:55	1	4.40	1.24	435.8	7.26	83.9	19.5		no colour, clear, no odour, no sheen
2:59	2	4.78	1.41	437.3	7.39	81.2	19.4		"
3:02	3	5.08	1.35	437.8	7.44	79.6	19.5		"
3:05	4	5.41	1.36	437.9	7.49	77.8	19.4		"
3.08	5	5.69	1.83	438.1	7.51	77.1	19.5		"

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

8 bottles, metals + Fe^{2+} filtered

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_DH048

Job Information

Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / T. Frederick
Date: 26/10/18
Round October 2018

Sampling Information

Purge Method: Peri
Sample Method: Peri
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 6.3 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL: 3.845 m
Screen: From: ..... to ..... m
NAPL Check: .....
Ref.datum: .....
Bore Depth: 6.40 m
Logic Check: ✓
Stick Up: ..... m
Bore Diam.: 50 mm
Well Cap Secure? Yes

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm...)	Elec.Cond (uScm.)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
7.59	1	4.18	4.56	240.6	5.87	120.9	19.4		light brown, cloudy, no odour, no sheen
8.02	2	4.31	4.54	238.6	5.78	124.3	19.4		clear, no colour, no odour, no sheen
8.05	3	4.45	4.37	238.1	5.74	126.4	19.4		"
8.08	4	4.59	4.84	236.2	5.55	138.2	19.4		"
8.11	5	4.70	5.18	236.1	5.44	146.2	19.4		"

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

8 bottles, metals + Fe2+ filtered

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_BH052

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 4.955 m
Project: Central Station Main Works	Sample Method: Peri	Logic Check: /
Proj. No.: 21-27234	WQ Meter Type: YSI	Screen: From: / to: m
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N	Pump Depth: 7.5 m
Date: 25/10/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Stick Up: m
Round October 2018		NAPL Check: /
		Bore Diam.: 50 mm
		Ref.datum:
		Well Cap Secure? Yes
		Bore Depth: 7.89 m

Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (.....)	Elec.Cond (.....)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
2:57	1	5.34	0.82	368.3	7.18	81.9	20.0		Clear
3:01	2	5.59	4.35	272.4	6.11	110.0	20.0		"
3:05	3	5.79	4.34	262.2	6.02	112.6	19.9		"
3:10	4	5.97	4.37	261.2	5.98	113.0	20.0		"
3:15	5	6.22	4.60	262.0	5.96	113.0	20.0		"

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

8 Bottles, metals and EC0 filtered

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_DH05J

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 4.950 m — Logic Check: .....
Project: Central Station Main Works	Sample Method: Peri	Screen: From:..... to..... m — Stick Up: ..... m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check:..... — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 9.5 m	Ref.datum: ..... — Well Cap Secure? Yes
Date: 25/10/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 9.92 m
Round October 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm.)	Elec.Cond (uS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
3.49	1	5.41	0.08	394.9	6.58	-22.5	20.2		cloudy, light grey (brown), no odour, no sheen.
3.53	2	5.63	0.06	349.0	6.42	-1.6	20.2		clear, no colour, no odour, no sheen.
3.56	3	5.75	0.04	341.1	6.39	1.0	20.2		" "
4.00	4	6.00	0.05	335.1	6.36	3.1	20.0		" "
4.04	5	6.11	0.06	330.5	6.34	6.9	20.0		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

8 bottles, Metals + Fe2+ filtered

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT-BH059

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Peri	SWL: 3.010 m Logic Check: /
Project: Central Station Main Works	Sample Method: Peri	Screen: From: / to: / m Stick Up: / m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: / Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 5.8 m	Ref.datum: / Well Cap Secure? Y
Date: 25/10/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.02 m
Round October 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (.ppm.)	Elec.Cond (uS.cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
11:54	1	3.37	2.75	385.3	6.84	90.8	19.5		clear, no colour, no odour, no sheen
11:58	2	3.67	2.64	385.1	6.85	91.2	19.4		" "
12:02	3	3.94	2.52	385.1	6.90	89.4	19.4		" "
12:05	4	4.12	2.65	387.1	6.93	88.4	19.4		" "
12:09	5	4.40	2.71	387.9	6.95	87.9	19.4		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

8 bottles, Metals + Fe2+ filtered

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_BH063

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Geocontrol Micropurge	SWL: 10.67 m — Logic Check: /
Project: Central Station Main Works	Sample Method: Geocontrol "	Screen: From: / to / m — Stick Up: / m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: / — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 14.0 m	Ref.datum: / — Well Cap Secure? Y
Date: 26/10/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 19.59 m
Round October 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (..ppm..)	Elec.Cond (..uS/cm..)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
12:33	1	10.96	2.05	747	6.92	-9.2	21.5		cloudy, white ~~no colour~~, no odor, no sheen
12:37	2	11.18	2.24	738	6.79	8.4	21.5		" "
12:42	3	11.45	2.31	732	6.71	25.5	21.4		clear, no colour, no odour, no sheen.
12:47	4	11.64	2.49	731	6.65	36.1	21.4		" "
12:51	5	11.83	2.65	730	6.63	42.6	21.4		" "
12:55	6	12.06	2.56	730	6.60	47.6	21.4		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

8 bottles Metals + Fe2+ filtered

Data logger Downloaded

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_BH082

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 4.625 m	Logic Check: —
Project: Central Station Main Works	Sample Method: Peri	Screen: From: — to: — m	Stick Up: — m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: —	Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 7.5 m	Ref.datum: mbgl	Well Cap Secure? Y
Date: 25/10/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 7.94 m	
Round October 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)		

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (.ppm...)	Elec.Cond (uS/cm.)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		stable	+/- 10%	+/- 3%	+/- 0.05 pH	+/- 10 mV	-		
9:09	1	4.95	0.40	209.3	5.36	157.9	19.7		Red scum, wate clear, no odour
9:14	2	4.99	0.33	187.3	5.17	158.6	19.8		clear, no colour, no odour, no sheen
9:18	3	5.01	0.32	186.7	5.12	159.6	19.9		" "
9:23	4	5.03	0.26	185.1	5.14	152.0	19.9		" "
9:28	5	5.05	0.24	185.2	5.14	151.5	19.9		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

8 Bottles, duplicate QA01. More Red scum encounted during sampling.
Metals + Fe2+ filtered.

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_CBH001

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 5.748 m — Logic Check: /
Project: Central Station Main Works	Sample Method: Peri	Screen: From: / to: m — Stick Up: m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: / — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 7.8 m	Ref.datum: / — Well Cap Secure? Yes
Date: 26/10/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 8.05 m
Round October 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (p.p.m.)	Elec.Cond (mS.cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
8:34	1	6.12	4.09	215.1	4.99	174.0	20.1		clear, no colour, no odour, no sheen.
8.38	2	6.18	4.10	215.4	4.95	176.0	20.1		"
8.42	3	6.36	4.03	215.6	4.91	177.3	20.1		"
8.46	4	6.52	2.48	208.5	4.87	177.9	20.1		"
8.49	5	6.65	2.04	198.1	5.07	166.0	20.1		"

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

8 bottles, Metals + Fe2+ filtered

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: CBH015

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 3.67 m Logic Check: /
Project: Central Station Main Works	Sample Method: Peri	Screen: From: / to: m Stick Up: m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 5.5 m	Ref.datum: Well Cap Secure? Y
Date: 25/10/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 5.92 m
Round October 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm.)	Elec.Cond (mS.m)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		stable	+/- 10%	+/- 3%	+/- 0.05 pH	+/- 10 mV	-		
12:52	1	3.98	0.95	263.8	5.86	112.7	20.0		light grey, cloudy, grey-brown sediment
12:57	2	3.99	0.86	263.6	5.96	123.5	20.0		clear, no colour, no odour, no sheen
1:01	3	4.07	0.64	262.7	5.66	124.1	19.9		" "
1:05	4	4.15	0.59	262.0	5.63	125.7	19.9		" "
1:09	5	4.24	0.48	259.7	5.59	126.7	19.9		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

8 bottles, metals + Fe2+ filtered.

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: CBH017

Job Information
- Client: Laing O'Rourke / Sydney Metro
- Project: Central Station Main Works
- Proj. No.: 21-27234
- Sampler: T. Nham / T. Frederick
- Date: 25/10/18
- Round October 2018

Sampling Information
- Purge Method: Peri
- Sample Method: Peri
- WQ Meter Type: YSI
- Flow Cell: Y / N Pump Depth: 4.8 m
- WLevel Meter Type: Dip / Fox / Int.Fce / Gge
- Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information
- SWL: 2.880 m Logic Check: /
- Screen: From: /.....to...../..... m Stick Up: ..... m
- NAPL Check: / Bore Diam.: 50 mm
- Ref.datum: / Well Cap Secure? /
- Bore Depth: 4.94 m

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm)	Elec.Cond (µS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
10:51	1	3.23	2.67	181.1	6.11	105.2	19.6		Clear, no colour, no sheen, no odour
10.54	2	3.91	3.04	172.5	6.03	110.6	19.6		" "
10.57	3	3.56	3.12	148.0	5.97	114.0	19.5		" "
11.01	4	3.81	2.51	1523	6.06	110.0	19.6		" "
11.05	5	3.97	1.89	155.0	6.08	108.2	19.6		

Field QA Checks:
Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Datalogger Downloaded 8 bottles, metals + Fe2+ filtered.

11:42am
SWL 2.880 mbTOC

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_CBU001

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Pri	SWL: 6.045 m Logic Check: —
Project: Central Station Main Works	Sample Method: Pri	Screen: From:.....to..... m Stick Up: ..... m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check:..... Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 7.8 m	Ref.datum: — Well Cap Secure? Y
Date: 26/11/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 8.030 m
Round ~~October~~ Nov 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm)	Elec.Cond (uS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
10.57	1	6.32	4.20	209.6	4.99	101.2	20.9		~~Water~~, cloudy, no colour, no odour, no sheen
11.02	2	6.44	4.26	210.5	5.18	69.3	21.1		clear, no colour, no odour, no sheen.
11.07	3	6.63	3.64	207.6	5.34	36.5	21.0		" "
11.13	4	6.83	2.18	188.2	5.97	-666.3	21.0		" "
11.18	5	6.94	2.31	188.4	6.08	-675.4	20.9		" "
11.22	6	7.05	2.26	191.6	6.19	-675.8	21.2		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_CBH015

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 3.77 m — Logic Check: —
Project: Central Station Main Works	Sample Method: Peri	Screen: From:.....to..... m — Stick Up: — m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: — — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 5.8 m	Ref.datum: — — Well Cap Secure? Y
Date: 27/11/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 5.91 m
Round ~~October~~ Nov 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm)	Elec.Cond (µS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
11.15	1	3.99	0.16	238.2	5.74	79.6	20.1		clear, no colour, no odour, no sheen
11.19	2	4.08	0.20	237.9	5.66	54.4	20.1		" "
11.23	3	4.18	0.19	244.9	5.67	28.0	20.0		" "
11.28	4	4.27	0.13	237.6	5.64	3.6	20.0		" "
11.32	5	4.34	0.08	229.3	5.59	-13.3	20.0		" "
11.36	6	4.40	0.09	220.0	5.57	-29.9	20.0		" "
11.40	7	4.45	0.10	213.5	5.56	-43.5	20.1		" "
11.43	8	4.48	0.11	207.9	5.53	-50.9	20.1		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_CBH017

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Pri	SWL: 2.938 m — Logic Check: -
Project: Central Station Main Works	Sample Method: Pri	Screen: From:.....to..... m — Stick Up: - m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check:..... - — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 4.8 m	Ref.datum: - — Well Cap Secure? Y
Date: 26/11/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 4.93 m
Round ~~October~~ Nov 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (.....)	Elec.Cond (µS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
1.07	1	3.27	0.94	171.6	6.03	58.0	20.3		clear, no colour, no odour, no sheen.
1.11	2	3.48	3.43	125.2	5.90	41.7	20.3		"
1.16	3	3.66	3.41	115.8	5.78	38.7	20.3		"
1.20	4	3.87	2.81	123.6	5.77	31.2	20.3		"
1.25	5	4.08	1.40	149.F	5.90	14.4	20.3		"

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Data logger downloaded

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_BH047

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 4.860 m Logic Check: —
Project: Central Station Main Works	Sample Method: Peri	Screen: From:.....to..... m Stick Up: — m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 6.8 m	Ref.datum: — Well Cap Secure? Y
Date: 26/11/18 (NOV)	WLevel Meter Type: IP Dip / Fox / Int.Fce / Gge	Bore Depth: 6.95 m
Round ~~October~~ 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (..ppm..)	Elec.Cond (.uS/cm.)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
3:30	1	5.75	0.83	410.8	7.22	-21.8	19.8		clear, no colour, no odour, no sheen
3:35	2	6.08	0.92	411.5	7.29	-38.1	19.8		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Not enough water, sampled before 3 stable readings

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_BH048

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 4.335 m Logic Check: —
Project: Central Station Main Works	Sample Method: Peri	Screen: From:.....to..... m Stick Up: — m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check:..... Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 6 m	Ref.datum: ..... Well Cap Secure? Y
Date: 25/11/18	WLevel Meter Type: IP Dip / Fox / Int.Fce / Gge	Bore Depth: 6.36 m
Round ~~October~~ Nov 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (.....)	Elec.Cond (uS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
8:47	1	4.67	2.97	235.1	6.06	107.1	19.9		clear, no colour, no odour, no sheen
8.51	2	4.88	3.13	231.7	6.08	82.0	19.9		" "
8.56	3	5.14	2.80	224.7	6.01	52.8	19.9		" "
9.01	4	5.90	2.58	224.0	5.95	48.0	19.9		" "
9.06	5	5.62	1.95	226.7	5.93	32.8	19.9		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT-BH052

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 5.384 m Logic Check: -
Project: Central Station Main Works	Sample Method: Peri	Screen: From:.....to..... m Stick Up: - m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: - Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 5 m	Ref.datum: - Well Cap Secure? Y
Date: 26/11/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 7.89 m
Round ~~October~~ Nov 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (.ppm..)	Elec.Cond (mS/cm.)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
2.48	1	5.89	4.62	269.3	6.18	40.1	20.3		clear, no colour, no odour, no sheen
2.53	2	6.11	4.37	280.6	6.21	13.0	20.2		" "
2.58	3	6.90	3.66	313.5	6.37	0.2	20.2		" "
3.02	4	6.57	4.80	308.0	6.90	3.7	20.2		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

GHD MANAGEMENT ENGINEERING ENVIRONMENT

Purging and Sampling Record

Bore ID: SRT-BH059

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 3.96 m Logic Check: -
Project: Central Station Main Works	Sample Method: Peri	Screen: From:.....to..... m Stick Up: - m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check:- Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 5.8 m	Ref.datum: - Well Cap Secure? Y
Date: 26/11/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.00 m
Round ~~October~~ Nov 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm)	Elec.Cond (uS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
2:02	1	4.34	5.26	354.2	6.52	73.4	20.1		clear, no colour, no odour, no sheen
2:07	2	4.73	4.68	355.6	6.70	28.1	20.2		" "
2:11	3	4.98	4.02	354.0	6.72	17.6	20.2		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SKT_BH063

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Geocontrol	SWL: 10.75 m — Logic Check: -
Project: Central Station Main Works	Sample Method: Geocontrol	Screen: From:.....to..... m — Stick Up: - m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check:.....-..... — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 14 m	Ref.datum: - — Well Cap Secure? Y
Date: 27/11/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 14.54 m
Round ~~October~~ NOV 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (.....)	Elec.Cond (uScm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
9:59	1	11.31	2.25	~~1118~~	6.53	30.9	21.5		clear, no colour, no odour, no sheen.
10:03	2	11.53	2.33	708	6.51	31.3	21.5		" "
10.06	3	11.82	2.53	707	6.51	29.1	21.5		" "
10.09	4	12.03	2.50	707	6.51	25.0	21.5		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT-BH082

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 4.950 m Logic Check: —
Project: Central Station Main Works	Sample Method: Peri	Screen: From:.....to..... m Stick Up: ..... m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check:..... Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 7.8 m	Ref.datum: ..... Well Cap Secure? Y
Date: 26/11/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 7.93 m
Round ~~October~~ NOV 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm.....)	Elec.Cond (uS/cm..)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
9.46	1	5.16	0.18	173.1	5.51	64.7	20.2		clear, no odour, v. red scum/algae, no odour no sheen
9.51	2	5.23	0.22	174.7	5.54	40.8	20.3		clear, no colour, no odour, no sheen
9.56	3	5.28	0.28	177.2	5.55	27.8	20.2		"
10.01	4	5.32	0.17	175.8	5.51	19.1	20.2		"
10.06	5	5.35	0.15	175.8	5.44	14.9	20.2		"

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

QA01 taken

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_CONDIT

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Peri	SWL: 3.635 m — Logic Check: ✓
Project: Central Station Main Works	Sample Method: Peri	Screen: From: ..... to: ..... m — Stick Up: – m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: ✓ — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 5.5 m	Ref.datum: ..... — Well Cap Secure? Y
Date: 17/12/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 5.91 m
Round December 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm...)	Elec.Cond (uS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
12:58	1	3.92	0.32	320.2	5.65	211.5	21.1		clear, no colour, no odour, no sheen
1:03	2	3.97	0.30	248.8	5.46	230.0	21.1		" "
1:10	3	4.04	0.36	237.6	5.44	237.0	21.0		" "
1:15	4	4.11	0.59	231.2	5.44	242.2	20.8		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

QA02 Taken

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT – CBH617

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 2.846 m
Project: Central Station Main Works	Sample Method: Peri	Screen: From: – to: – m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: –
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 4.8 m	Ref.datum: TOC
Date: 17/12/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 4.94 m
Round December 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	Logic Check: – Stick Up: – m Bore Diam.: 50 mm Well Cap Secure? Y

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm...)	Elec.Cond (uS/cm.)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
12:06	1	3.24	3.41	149.7	6.06	188.4	21.1		clear, no colour, no odour, no sheen
12:12	2	3.43	4.55	150.5	6.18	185.2	21.3		" "
12:16	3	3.60	4.24	139.1	6.04	138.7	21.3		" "
12:20	4	3.73	3.83	147.9	5.99	196.8	21.1		" "
12:25	5	3.91	2.46	146.8	6.01	199.1	21.3		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT-BH067

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Peri	SWL: 3.768 m Logic Check: -
Project: Central Station Main Works	Sample Method: Peri	Screen: From: ..... to ..... m Stick Up: - m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: ..... Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 6.8 m	Ref.datum: ..... Well Cap Secure? Y
Date: 18/12/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.94 m
Round December 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (.ppm...)	Elec.Cond (.uS/cm..)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
10:04	1	4.50	1.63	398.5	7.56	167.8	20.1		clear, no colour, no odour, no sheen.
10:09	2	4.84	4.32	365.6	7.38	166.8	20.1		" "
10:16	3	5.23	4.73	356.9	7.22	168.0	20.5		" "
10:24	4	5.90	4.98	359.7	7.22	161.1	20.5		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_DH037

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method:	SWL: 5.00 m — Logic Check: /
Project: Central Station Main Works	Sample Method:	Screen: From:.....to..... m — Stick Up:..... m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check:..... — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 7.6 m	Ref.datum: ..... — Well Cap Secure? Yes
Date: 18/12/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 7.85 m
Round December 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm..)	Elec.Cond (mS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
9:04	1	5.48	4.54	317.4	7.01	155.6	20.3		clear, no colour, no odour, no sheen
9:08	2	5.64	6.01	255.8	6.22	184.5	20.3		" "
9:13	3	5.92	5.98	251.0	5.99	200.9	20.2		" "
9:18	4	6.11	5.82	251.9	5.95	206.8	20.3		" "
9:24	5	6.40	5.92	208.5	6.00	208.6	20.2		" "
9:29	6	6.60	5.64	270.9	6.17	206.1	20.3		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_DH059

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Pen	SWL: 2.981 m — Logic Check: ✓
Project: Central Station Main Works	Sample Method: Pen	Screen: From:..... to..... m — Stick Up: ..... m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: ✓ — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 5.8 m	Ref.datum: ✓ — Well Cap Secure? Yes
Date: 17/12/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.00 m
Round December 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (.ppm...)	Elec.Cond (.uS/cm.)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
1:59	1	3.15	3.58	425.2	7.00	192.9	21.1		clear, no colour, no odour, no sheen
2:05	2	3.28	3.15	412.9	7.05	185.3	20.9		" " "
2:10	3	3.41	2.87	406.9	7.07	181.7	20.9		" " "
2:15	4	3.54	2.86	404.9	7.06	178.8	21.6		" " "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_BH063

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Micropre QED	SWL: 10.728 m — Logic Check: .....
Project: Central Station Main Works	Sample Method: "	Screen: From:..... to..... m — Stick Up: ..... m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check:..... — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 14 m	Ref.datum: ..... — Well Cap Secure? Yes
Date: 17/12/18	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 14.51 m
Round December 2018	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm..)	Elec.Cond (µS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings).		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
10:09	1	10.50	2.88	754	6.63	56.1	21.8		clear/cloudy.
10:12	2	11.23	2.77	754	6.64	82.1	21.8		"
10:19	3	11.66	2.81	752	6.64	107.6	21.8		clear/cloudy, no odour, no sheen
10:25	4	11.91	2.94	752	6.63	117.9	21.8		" "
10:30	5	12.14	2.75	752	6.63	124.9	21.8		" "
10:35	6	12.95	2.71	756	6.64	129.6	21.8		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Q+S

DUP = QA01

Metals + FE2 filtered

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT-BH047

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Pri	SWL: 4.175 m
Project: Central Station Main Works	Sample Method: Pri	Screen: From: - to: - m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: -
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N	Pump Depth: 9.7 m
Date: 17/1/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Ref.datum: -
Round January 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	Bore Depth: 6.55 m

Logic Check: -
Stick Up: ..... m
Bore Diam.: 50 mm
Well Cap Secure? Y

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm.....)	Elec.Cond (µS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
12:14	1	5.28	2.30	453.5	7.45	115.9	21.0		clear, no odour, no colour, no sheen.
12:22	2	5.70	5.20	386.0	7.23	121.7	21.4		"
12:26	3	5.93	5.15	380.8	7.21	121.5	21.4		"
12:30	4	6.10	4.96	386.1	7.22	119.3	21.4		"

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Bottle 9, Metal + Fe filtered

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_BH052

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 5.285 m — Logic Check: /
Project: Central Station Main Works	Sample Method: Peri	Screen: From: / to ..... m — Stick Up: ..... m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: / — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 7.7 m	Ref.datum: ..... — Well Cap Secure? Yes
Date: 17/1/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 7.90 m
Round January 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm...)	Elec.Cond (uS/cm...)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
11:28	1	5.77	5.12	334.0	6.52	148.3	20.8		clear, no colour, no odour, no sheen
11:33	2	5.98	5.21	309.5	6.21	157.3	20.7		" "
11:37	3	6.14	5.06	301.6	6.13	161.3	20.7		" "
11:43	4	6.53	4.58	335.9	6.24	159.3	20.7		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters / Preservatives	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Bottles [redacted], Metals + fe2+ filtered

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT – BHG59

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Pei	SWL: 3.127 m
Project: Central Station Main Works	Sample Method: Pei	Screen: From: – to: – m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: –
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N	Pump Depth: 5-8 m
Date: 9/1/19	WLevel Meter Type:	Dip / Fox / Int.Fce / Gge
Round January 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	Bore Depth: 6.00 m
		Logic Check: –
		Stick Up: – m
		Bore Diam.: 50 mm
		Ref.datum: –
		Well Cap Secure? Y

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (.ppm.)	Elec.Cond (mS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings)		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
1:00	1	3.58	2.00	375.3	6.99	147.3	21.6		clear, no colour, no odour, no sheen
1:05	2	3.95	2.12	376.8	7.00	141.6	21.5		"
1:09	3	4.17	2.16	376.6	7.02	137.8	21.5		"
1:14	4	4.62	2.08	378.3	7.06	132.3	21.7		"
1:20	5	5.03	1.74	381.0	7.02	128.6	21.7		"

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_MW063

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Geocontrol	SWL: 10.715 m — Logic Check: —
Project: Central Station Main Works	Sample Method: Geocontrol	Screen: From: — to: — m — Stick Up: — m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: — — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 14.0 m	Ref.datum: — — Well Cap Secure? T
Date: 17/1/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 19.49 m
Round January 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm.)	Elec.Cond (uS/cm.)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
3:10	1	11.28	3.40	776	6.94	30.4			clear, no odour, no colour, no sheen
3:14	2	11.67	3.35	776	6.88	43.7			" "
3:19	3	11.95	3.85	774	6.83	51.1			" "
3:23	4	12.37	3.08	780	6.84	56.9			" "
3:27	5	12.66	3.20	782	6.84	57.7			" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Bottles 9+9, Metals + Field Filtered. DUP = QA01

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SBT-CBG15

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 3.720 m Logic Check: -
Project: Central Station Main Works	Sample Method: Peri	Screen: From: - to: - m Stick Up: - m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: - Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 5.7 m	Ref.datum: - Well Cap Secure? Y
Date: 18/1/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 5.91 m
Round January 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (.ppm.)	Elec.Cond (uS/cm.)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		stable	+/- 10%	+/- 3%	+/- 0.05 pH	+/- 10 mV	-		
1:52	1	4.06	0.35	245.3	5.41	187.6	21.4		clear, no colour, no odour, no sheen
1:57	2	4.12	0.47	239.2	5.36	194.6	21.5		" "
2:03	3	4.14	0.73	224.4	5.35	205.1	21.9		" "
2:07	4	4.18	0.84	223.7	5.37	209.0	21.3		" "
2:12	5	4.23	0.81	227.9	5.40	210.0	21.3		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

QA02 Taken

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_COH017

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 2.902 m — Logic Check: –
Project: Central Station Main Works	Sample Method: Peri	Screen: From: – to: – m — Stick Up: – m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: – — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 4.7 m	Ref.datum: – — Well Cap Secure? Y
Date: 18/1/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 4.935 m
Round January 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm..)	Elec.Cond (uS/cm.)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
12:02	1	3.20	0.55	304.2	6.05	164.2	21.6		clear, no colour, no odour, no sheen.
12:09	2	3.48	2.48	178.2	6.03	159.2	21.7		"
12:14	3	3.64	3.47	143.1	6.02	158.3	21.7		"
12:20	4	3.85	2.66	132.3	5.93	162.3	21.7		"

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

GHD MANAGEMENT ENGINEERING ENVIRONMENT

Purging and Sampling Record

Bore ID: SRT_BH047

Job Information	*Sampling Information*	*Bore Information*
Client: Laing O'Rourke / Sydney Metro	Purge Method: ~~Geocontrol~~ Peri	SWL: 4.510 m — Logic Check: —
Project: Central Station Main Works	Sample Method: Peri	Screen: From: — to: — m — Stick Up: 0 m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: — — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 6.8 m	Ref.datum: — — Well Cap Secure?: —
Date: 20/2/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.94 m
Round February 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm)	Elec.Cond (mS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
10:15	1	5.26	0.63	457.8	8.00	136.9	20.4		slightly cloudy, no colour, no odour, no sheen
10.19	2	5.59	0.46	447.3	8.55	118.0	20.4		" "
10.23	3	5.90	0.35	439.6	8.73	111.4	20.4		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_BH052

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: ~~Geotech~~ Peri	SWL: 5.565 m — Logic Check: -
Project: Central Station Main Works	Sample Method: ~~Geotech~~ Peri	Screen: From: - to: - m — Stick Up: - m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: - — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 7.6 m	Ref.datum: - — Well Cap Secure? Y
Date: 20/2/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 7.88 m
Round February 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm...)	Elec.Cond (uS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
9:12	1	6.03	5.44	288.7	6.55	178.7	20.5		clear, no colour, no odour, no sheen
9:18	2	6.15	4.28	~~324.0~~	6.63	176.4	20.7		"
9:24	3	6.32	3.94	346.7	6.66	176.8	20.8		"
9.30	4	6.56	4.10	348.0	6.67	177.2	20.7		"
~~9:35~~	~~5~~	~~6.59~~	~~6.03~~	~~344.4~~	~~6.62~~	~~179.1~~	~~21.0~~		"
9.43	5	6.60	4.05	389.0	7.14	150.1	21.1		"

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT-BH059

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri Pump	SWL: 3.156 m
Project: Central Station Main Works	Sample Method: Peri Pump	Logic Check: –
Proj. No.: 21-27234	WQ Meter Type: YSI	Screen: From: – to: – m
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 5.9 m	Stick Up: 0 m
Date: 20/2/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	NAPL Check: –
Round February 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	Ref.datum: –
		Bore Depth: 6.00 m
		Bore Diam.: 50 mm
		Well Cap Secure? Y

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm.)	Elec.Cond (uS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
1:01	1	3.42	2.25	~~190.2~~	6.99	151.0	21.2		clear, no colour, no odour, no sheen
1:06	2	3.54	1.92	390.8	7.05	148.4	21.9		" "
1:10	3	3.88	2.43	390.2	7.06	147.9	21.2		" "
1:15	4	4.26	2.56	392.0	7.07	147.7	21.3		" "
1:19	5	4.73	2.93	394.2	7.07	147.9	21.4		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_BH063

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Geocontrol	SWL: 10.715 m — Logic Check: —
Project: Central Station Main Works	Sample Method: Geo	Screen: From: — to — m — Stick Up: — m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: — — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 13.5 m	Ref.datum: — — Well Cap Secure? Y
Date: 21/2/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 14.56 m
Round February 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm.....)	Elec.Cond (~~µS/cm~~ mS/cm.....)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
8:53	1	11.08	3.73	774	6.67	77.8	21.7		clear, no colour, no odour, no sheen
8:56	2	11.39	3.83	773	6.63	90.4	21.7		" "
9:00	3	11.62	3.82	770	6.62	100.1	21.7		" "
9:04	4	11.82	3.86	~~5~~770	6.61	106.9	21.7		" "
9:08	5	12.05	3.76	771	6.61	110.5	21.7		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

QA02 Taken

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_CBH015

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Pri	SWL: 3.761 m
Project: Central Station Main Works	Sample Method: Pri	Screen: From: - to: - m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: -
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N Pump Depth: 5.8 m	Ref.datum: -
Date: 20/2/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 5.91 m
Round February 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	Logic Check: -
		Stick Up: - m
		Bore Diam.: 50 mm
		Well Cap Secure? Y

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm)	Elec.Cond (uS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
11:17	1	3.98	0.17	255.3	5.75	138.0	20.9		brown/grey, turbid, no odour, no sheen.
11:21	2	4.10	0.20	249.6	5.52	173.3	21.1		clear, no colour, no odour, no sheen
11:25	3	4.14	0.25	240.6	5.46	186.9	21.1		" "
11:29	4	4.22	0.47	196.0	5.43	196.4	21.1		" "
11:33	5	4.26	0.49	230.0	5.44	200.4	21.1		" "
11:37	6	4.31	0.40	229.0	5.44	204.1	21.1		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

QA01 taken

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: SRT_CBH017

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 2.856 m — Logic Check: —
Project: Central Station Main Works	Sample Method: Peri	Screen: From: — to: — m — Stick Up: 0 m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: — — Bore Diam.: 50 mm
Sampler: T. Nham / T. Frederick	Flow Cell: Y / N — Pump Depth: 4.8 m	Ref.datum: — — Well Cap Secure? T
Date: 20/2/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 4.99 m
Round February 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (ppm.)	Elec.Cond (mS/cm)	pH (pH units)	Ox-Red Pt. (± mV)	Temp (°C)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		*stable*	*+/- 10%*	*+/- 3%*	*+/- 0.05 pH*	*+/- 10 mV*	-		
1:52	1	3.01	0.33	279.5	6.74	163.0	21.9		clear, no colour, no odour, no sheen
1:56	2	3.27	1.55	210.0	6.16	170.4	22.0		" "
2:00	3	3.47	3.53	169.3	6.04	180.6	22.2		" "
2:05	4	3.65	3.38	158.5	5.98	187.8	22.3		" "
2:09	5	3.86	2.53	149.2	5.93	193.8	22.3		" "

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Appendix F Chain of Custody and Laboratory Analysis Certificates

eurofins | mgt

☑ **Sydney**
Unit F3 - 6 Building F, 16 Mars Road, Lane Cove
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Email: enquiries.melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS Page 1 of ____

Company Name : GHD Pty Ltd, Sydney	**Contact Name :** Terry Nham	**Purchase Order :**	**COC Number :**
Office Address :	**Project Manager :** Henry Luo	**PROJECT Number :** 21-27234	**Eurofins | mgt quote ID :** GHD Rates 2018
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results :** terry.nham@ghd.com henry.luo@ghd.com	**PROJECT Name :** Central	**Data output format:** ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number: S-0076

Analytes

	Sample ID	Date	Matrix	TRH, BTEX, PAH, 8 Metals, Phenols (Suite B7A)	OCP, OPP, PCB (Suite B15)	TRH (with Silica Gel Cleanup)	Cyanide	Ammonia	Major Anions and Cations	TRH C6-C10 / BTEX	8 Metals	TRH, BTEX, PAH, 8 Metals (B7)
1	SRT_BH064	6/9/18	Water	X	X	X	X	X	X			
2	SRT_CBH007			X	X	X	X	X	X			
3	SRT_CBH001			X	X	X	X	X	X			
4	SRT_BH048			X	X	X	X	X	X			
5	SRT_BH053			X	X	X	X	X	X			
6	SRT_BH047			X	X	X	X	X	X			
7	SRT_BH063			X	X	X	X	X	X			
8	QA01											X
9	RB01										X	
10	Trip Blank									X		
11	Trip Spike									X		
12	SRT_BH039	7/9/18		X	X	X	X	X	X			
13	SRT_CBH015			X	X	X	X	X	X			
14	SRT_CBH017			X	X	X	X	X	X			
15	QA02			Please send to ALS Lab attached COC								
16												

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

	500P	250P	125P	1LA	40mL vial	125mL A	Jar	Bag
1	1		3	1	2			
2	1		3	1	2			
3	1		3	1	2			
4	1		3	1	2			
5	1		3	1	2			
6	1		3	1	2			
7	1		3	1	2			
8	1		3	1	2			
9			1					
10					2			
11					2			
12	1		3	1	2			
13	1		3	1	2			
14	1		3	1	2			
15	1		3	1	2			
16								

Sample comments:

Relinquished By: Terry Nham - GHD
Date & Time : 7/9/18
Signature:

Laboratory Staff
Received By:
Date & Time : 07-09-18 4:51 PM
Signature:

Turn around time
1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☒ 10 DAY ☐ Other:

Method Of Shipment
☐ Courier
☒ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival:

Report number: 616629

MARK BA 12 ANOS MS 10/9 11AM

CHAIN OF CUSTODY

ALS Laboratory please tick →

CLIENT: GHD Pty Ltd	TURNAROUND REQUIREMENT ☐ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: Sydney	(Standard TAT may be longer for some tests e.g. Ultra Trace) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: 21-27234	ALS QUOTE NO.: E(illegible)	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER:	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: C
PROJECT MANAGER: Henry Lho	CONTACT PH: 02 9239 7044 / 0414 096 002	OF: 1 2 3 4 5 6 7 Other comment:
SAMPLER: Terry Nham	SAMPLER MOBILE: 0402 251 [illegible]	
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	
Email Reports to: henry.lho@ghd.com terry.nham@ghd.com		
Email Invoice to (will default to PM if no other addresses are listed):		

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Terry Nham (GHD)			
DATE/TIME:	DATE/TIME:	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	TRH / BTEX / PAH / Metals (inc Hg)

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; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial; 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.

eurofins | mgt

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Attention: **Henry Luo**

Report **616629-W**
Project name CENTRAL
Project ID 21-27324
Received Date Sep 08, 2018

Client Sample ID			**SRT-BH064**	**SRT-CBH007**	**SRT-CBH001**	**SRT-BH048**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M18-Se10871**	**M18-Se10872**	**M18-Se10873**	**M18-Se10874**
Date Sampled			**Sep 06, 2018**	**Sep 06, 2018**	**Sep 06, 2018**	**Sep 06, 2018**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	0.003	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	106	104	103	100
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			SRT-BH064	SRT-CBH007	SRT-CBH001	SRT-BH048
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Se10871	M18-Se10872	M18-Se10873	M18-Se10874
Date Sampled			Sep 06, 2018	Sep 06, 2018	Sep 06, 2018	Sep 06, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	90	70	65	62
p-Terphenyl-d14 (surr.)	1	%	129	92	90	93
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4.4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Toxaphene	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	83	52	50	52
Tetrachloro-m-xylene (surr.)	1	%	110	80	77	76
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			SRT-BH064	SRT-CBH007	SRT-CBH001	SRT-BH048
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Se10871	M18-Se10872	M18-Se10873	M18-Se10874
Date Sampled			Sep 06, 2018	Sep 06, 2018	Sep 06, 2018	Sep 06, 2018
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	107	61	60	112
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	83	52	50	52
Tetrachloro-m-xylene (surr.)	1	%	110	80	77	76
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003

Client Sample ID			SRT-BH064	SRT-CBH007	SRT-CBH001	SRT-BH048
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Se10871	M18-Se10872	M18-Se10873	M18-Se10874
Date Sampled			Sep 06, 2018	Sep 06, 2018	Sep 06, 2018	Sep 06, 2018
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	50	46	46	44
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Chloride	1	mg/L	23	9.7	17	34
Cyanide (total)	0.005	mg/L	0.028	0.012	< 0.005	< 0.005
Nitrate (as N)	0.02	mg/L	2.3	1.9	9.2	0.09
Sulphate (as SO4)	5	mg/L	58	46	34	47
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	46	< 20	22	130
Carbonate Alkalinity (as CaCO3)	10	mg/L	34	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	5.7	1.4	8.7	19
Magnesium	0.5	mg/L	0.7	3.0	6.8	6.2
Potassium	0.5	mg/L	18	1.7	1.8	2.7
Sodium	0.5	mg/L	63	25	24	56
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.005	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.024	0.36	0.003	0.045
Lead (filtered)	0.001	mg/L	0.002	0.023	< 0.001	0.004
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.006	0.020	0.004	0.011
Zinc (filtered)	0.005	mg/L	0.032	0.48	0.012	0.066

Client Sample ID			SRT-BH053	SRT-BH047	SRT-BH063	QA01
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Se10875	M18-Se10876	M18-Se10877	M18-Se10878
Date Sampled			Sep 06, 2018	Sep 06, 2018	Sep 06, 2018	Sep 06, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	102	99	104	102
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	68	77	86	59
p-Terphenyl-d14 (surr.)	1	%	105	121	141	107
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
4.4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
4.4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
4.4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-

Client Sample ID			SRT-BH053	SRT-BH047	SRT-BH063	QA01
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Se10875	M18-Se10876	M18-Se10877	M18-Se10878
Date Sampled			Sep 06, 2018	Sep 06, 2018	Sep 06, 2018	Sep 06, 2018
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Toxaphene	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Dibutylchlorendate (surr.)	1	%	56	69	76	-
Tetrachloro-m-xylene (surr.)	1	%	83	97	107	-
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
Demeton-S	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Omethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	-

Client Sample ID			SRT-BH053	SRT-BH047	SRT-BH063	QA01
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Se10875	M18-Se10876	M18-Se10877	M18-Se10878
Date Sampled			Sep 06, 2018	Sep 06, 2018	Sep 06, 2018	Sep 06, 2018
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Triphenylphosphate (surr.)	1	%	114	75	97	-
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Dibutylchlorendate (surr.)	1	%	56	69	76	-
Tetrachloro-m-xylene (surr.)	1	%	83	97	107	-
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	46	55	55	42
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH >C16-C34 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C34-C40 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-

Client Sample ID			SRT-BH053	SRT-BH047	SRT-BH063	QA01
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M18-Se10875**	**M18-Se10876**	**M18-Se10877**	**M18-Se10878**
Date Sampled			**Sep 06, 2018**	**Sep 06, 2018**	**Sep 06, 2018**	**Sep 06, 2018**
Test/Reference	LOR	Unit				
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH C15-C28 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C29-C36 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
Chloride	1	mg/L	32	27	72	-
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Nitrate (as N)	0.02	mg/L	< 0.02	21	0.15	-
Sulphate (as SO4)	5	mg/L	28	7.6	45	-
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	72	140	330	-
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	-
Alkali Metals						
Calcium	0.5	mg/L	6.3	64	66	-
Magnesium	0.5	mg/L	6.1	8.1	38	-
Potassium	0.5	mg/L	2.6	1.0	5.8	-
Sodium	0.5	mg/L	37	34	82	-
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.23	0.018	0.014	0.041
Lead (filtered)	0.001	mg/L	0.014	< 0.001	< 0.001	0.003
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.029	0.003	0.020	0.012
Zinc (filtered)	0.005	mg/L	0.32	0.021	0.22	0.058

Client Sample ID			RB01	TRIP BLANK	[R20]TRIP SPIKE	SRT-BH039
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M18-Se10879**	**M18-Se10880**	**M18-Se10881**	**M18-Se10882**
Date Sampled			**Sep 06, 2018**	**Sep 06, 2018**	**Sep 06, 2018**	**Sep 07, 2018**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	-	< 0.01	85	< 0.01
TRH C6-C10	0.02	mg/L	-	< 0.02	74	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	-	< 0.02	-	< 0.02
TRH >C10-C16	0.05	mg/L	-	-	-	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	-	-	-	< 0.05
TRH >C16-C34	0.1	mg/L	-	-	-	0.2
TRH >C34-C40	0.1	mg/L	-	-	-	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	-	-	-	0.2
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	-	< 0.02	74	< 0.02
TRH C10-C14	0.05	mg/L	-	-	-	< 0.05
TRH C15-C28	0.1	mg/L	-	-	-	0.2
TRH C29-C36	0.1	mg/L	-	-	-	< 0.1
TRH C10-36 (Total)	0.1	mg/L	-	-	-	0.2

Client Sample ID			RB01	TRIP BLANK	[R20]TRIP SPIKE	SRT-BH039
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Se10879	M18-Se10880	M18-Se10881	M18-Se10882
Date Sampled			Sep 06, 2018	Sep 06, 2018	Sep 06, 2018	Sep 07, 2018
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.001	mg/L	-	< 0.001	100	< 0.001
Toluene	0.001	mg/L	-	< 0.001	97	< 0.001
Ethylbenzene	0.001	mg/L	-	< 0.001	96	< 0.001
m&p-Xylenes	0.002	mg/L	-	< 0.002	94	< 0.002
o-Xylene	0.001	mg/L	-	< 0.001	95	< 0.001
Xylenes - Total	0.003	mg/L	-	< 0.003	94	< 0.003
4-Bromofluorobenzene (surr.)	1	%	-	103	101	104
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	%	-	-	-	60
p-Terphenyl-d14 (surr.)	1	%	-	-	-	70
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	-	-	-	< 0.001
4.4'-DDD	0.0001	mg/L	-	-	-	< 0.0001
4.4'-DDE	0.0001	mg/L	-	-	-	< 0.0001
4.4'-DDT	0.0001	mg/L	-	-	-	< 0.0001
a-BHC	0.0001	mg/L	-	-	-	< 0.0001
Aldrin	0.0001	mg/L	-	-	-	< 0.0001
b-BHC	0.0001	mg/L	-	-	-	< 0.0001
d-BHC	0.0001	mg/L	-	-	-	< 0.0001
Dieldrin	0.0001	mg/L	-	-	-	< 0.0001
Endosulfan I	0.0001	mg/L	-	-	-	< 0.0001
Endosulfan II	0.0001	mg/L	-	-	-	< 0.0001
Endosulfan sulphate	0.0001	mg/L	-	-	-	< 0.0001
Endrin	0.0001	mg/L	-	-	-	< 0.0001
Endrin aldehyde	0.0001	mg/L	-	-	-	< 0.0001
Endrin ketone	0.0001	mg/L	-	-	-	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	-	-	-	< 0.0001
Heptachlor	0.0001	mg/L	-	-	-	< 0.0001
Heptachlor epoxide	0.0001	mg/L	-	-	-	< 0.0001
Hexachlorobenzene	0.0001	mg/L	-	-	-	< 0.0001
Methoxychlor	0.0001	mg/L	-	-	-	< 0.0001
Toxaphene	0.01	mg/L	-	-	-	< 0.01

Client Sample ID			RB01	TRIP BLANK	[R20]TRIP SPIKE	SRT-BH039
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Se10879	M18-Se10880	M18-Se10881	M18-Se10882
Date Sampled			Sep 06, 2018	Sep 06, 2018	Sep 06, 2018	Sep 07, 2018
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Aldrin and Dieldrin (Total)*	0.0001	mg/L	-	-	-	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	-	-	-	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	-	-	-	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	-	-	-	< 0.001
Dibutylchlorendate (surr.)	1	%	-	-	-	56
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	60
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	-	-	-	< 0.002
Bolstar	0.002	mg/L	-	-	-	< 0.002
Chlorfenvinphos	0.002	mg/L	-	-	-	< 0.002
Chlorpyrifos	0.02	mg/L	-	-	-	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	-	-	-	< 0.002
Coumaphos	0.02	mg/L	-	-	-	< 0.02
Demeton-S	0.02	mg/L	-	-	-	< 0.02
Demeton-O	0.002	mg/L	-	-	-	< 0.002
Diazinon	0.002	mg/L	-	-	-	< 0.002
Dichlorvos	0.002	mg/L	-	-	-	< 0.002
Dimethoate	0.002	mg/L	-	-	-	< 0.002
Disulfoton	0.002	mg/L	-	-	-	< 0.002
EPN	0.002	mg/L	-	-	-	< 0.002
Ethion	0.002	mg/L	-	-	-	< 0.002
Ethoprop	0.002	mg/L	-	-	-	< 0.002
Ethyl parathion	0.002	mg/L	-	-	-	< 0.002
Fenitrothion	0.002	mg/L	-	-	-	< 0.002
Fensulfothion	0.002	mg/L	-	-	-	< 0.002
Fenthion	0.002	mg/L	-	-	-	< 0.002
Malathion	0.002	mg/L	-	-	-	< 0.002
Merphos	0.002	mg/L	-	-	-	< 0.002
Methyl parathion	0.002	mg/L	-	-	-	< 0.002
Mevinphos	0.002	mg/L	-	-	-	< 0.002
Monocrotophos	0.002	mg/L	-	-	-	< 0.002
Naled	0.002	mg/L	-	-	-	< 0.002
Omethoate	0.002	mg/L	-	-	-	< 0.002
Phorate	0.002	mg/L	-	-	-	< 0.002
Pirimiphos-methyl	0.02	mg/L	-	-	-	< 0.02
Pyrazophos	0.002	mg/L	-	-	-	< 0.002
Ronnel	0.002	mg/L	-	-	-	< 0.002
Terbufos	0.002	mg/L	-	-	-	< 0.002
Tetrachlorvinphos	0.002	mg/L	-	-	-	< 0.002
Tokuthion	0.002	mg/L	-	-	-	< 0.002
Trichloronate	0.002	mg/L	-	-	-	< 0.002
Triphenylphosphate (surr.)	1	%	-	-	-	86
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	-	-	-	< 0.001
Aroclor-1221	0.001	mg/L	-	-	-	< 0.001
Aroclor-1232	0.001	mg/L	-	-	-	< 0.001
Aroclor-1242	0.001	mg/L	-	-	-	< 0.001
Aroclor-1248	0.001	mg/L	-	-	-	< 0.001
Aroclor-1254	0.001	mg/L	-	-	-	< 0.001

Client Sample ID			RB01	TRIP BLANK	[R20]TRIP SPIKE	SRT-BH039
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Se10879	M18-Se10880	M18-Se10881	M18-Se10882
Date Sampled			Sep 06, 2018	Sep 06, 2018	Sep 06, 2018	Sep 07, 2018
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1260	0.001	mg/L	-	-	-	< 0.001
Total PCB*	0.001	mg/L	-	-	-	< 0.001
Dibutylchlorendate (surr.)	1	%	-	-	-	56
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	60
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	-	-	-	< 0.003
2.4-Dichlorophenol	0.003	mg/L	-	-	-	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	-	-	-	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	-	-	-	< 0.01
2.6-Dichlorophenol	0.003	mg/L	-	-	-	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	-	-	-	< 0.01
Pentachlorophenol	0.01	mg/L	-	-	-	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	-	-	-	< 0.03
Total Halogenated Phenol*	0.01	mg/L	-	-	-	< 0.01
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	-	-	-	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	-	-	-	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	-	-	-	< 0.003
2-Nitrophenol	0.01	mg/L	-	-	-	< 0.01
2.4-Dimethylphenol	0.003	mg/L	-	-	-	< 0.003
2.4-Dinitrophenol	0.03	mg/L	-	-	-	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	-	-	-	< 0.006
4-Nitrophenol	0.03	mg/L	-	-	-	< 0.03
Dinoseb	0.1	mg/L	-	-	-	< 0.1
Phenol	0.003	mg/L	-	-	-	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	-	-	-	< 0.1
Phenol-d6 (surr.)	1	%	-	-	-	46
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	-	-	-	< 0.05
TRH >C16-C34 (after silica gel clean-up)	0.1	mg/L	-	-	-	< 0.1
TRH >C34-C40 (after silica gel clean-up)	0.1	mg/L	-	-	-	< 0.1
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	0.1	mg/L	-	-	-	< 0.1
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	-	-	-	< 0.05
TRH C15-C28 (after silica gel clean-up)	0.1	mg/L	-	-	-	< 0.1
TRH C29-C36 (after silica gel clean-up)	0.1	mg/L	-	-	-	< 0.1
Ammonia (as N)	0.01	mg/L	-	-	-	0.70
Chloride	1	mg/L	-	-	-	28
Cyanide (total)	0.005	mg/L	-	-	-	0.007
Nitrate (as N)	0.02	mg/L	-	-	-	1.3
Sulphate (as SO4)	5	mg/L	-	-	-	940
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	-	-	-	< 20
Carbonate Alkalinity (as CaCO3)	10	mg/L	-	-	-	80
Alkali Metals						
Calcium	0.5	mg/L	-	-	-	460
Magnesium	0.5	mg/L	-	-	-	< 0.5
Potassium	0.5	mg/L	-	-	-	160
Sodium	0.5	mg/L	-	-	-	140

Client Sample ID			RB01	TRIP BLANK	[R20]TRIP SPIKE	SRT-BH039
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M18-Se10879**	**M18-Se10880**	**M18-Se10881**	**M18-Se10882**
Date Sampled			**Sep 06, 2018**	**Sep 06, 2018**	**Sep 06, 2018**	**Sep 07, 2018**
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	0.001	mg/L	< 0.001	-	-	-
Arsenic (filtered)	0.001	mg/L	-	-	-	< 0.001
Cadmium	0.0002	mg/L	< 0.0002	-	-	-
Cadmium (filtered)	0.0002	mg/L	-	-	-	< 0.0002
Chromium	0.001	mg/L	< 0.001	-	-	-
Chromium (filtered)	0.001	mg/L	-	-	-	0.003
Copper	0.001	mg/L	< 0.001	-	-	-
Copper (filtered)	0.001	mg/L	-	-	-	0.030
Lead	0.001	mg/L	< 0.001	-	-	-
Lead (filtered)	0.001	mg/L	-	-	-	0.003
Mercury	0.0001	mg/L	< 0.0001	-	-	-
Mercury (filtered)	0.0001	mg/L	-	-	-	< 0.0001
Nickel	0.001	mg/L	< 0.001	-	-	-
Nickel (filtered)	0.001	mg/L	-	-	-	0.004
Zinc	0.005	mg/L	< 0.005	-	-	-
Zinc (filtered)	0.005	mg/L	-	-	-	0.047

Client Sample ID			SRT-CBH015	SRT-CBH017
Sample Matrix			**Water**	**Water**
Eurofins | mgt Sample No.			**M18-Se10883**	**M18-Se10884**
Date Sampled			**Sep 07, 2018**	**Sep 07, 2018**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1
BTEX				
Benzene	0.001	mg/L	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	98	107

Client Sample ID			SRT-CBH015	SRT-CBH017
Sample Matrix			Water	Water
Eurofins | mgt Sample No.			M18-Se10883	M18-Se10884
Date Sampled			Sep 07, 2018	Sep 07, 2018
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	0.001	mg/L	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	90	82
p-Terphenyl-d14 (surr.)	1	%	68	61
Organochlorine Pesticides				
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001
4.4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001
4.4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001
4.4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001
Endrin	0.0001	mg/L	< 0.0001	< 0.0001
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001
Toxaphene	0.01	mg/L	< 0.01	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	73	67
Tetrachloro-m-xylene (surr.)	1	%	114	102

Client Sample ID			SRT-CBH015	SRT-CBH017
Sample Matrix			**Water**	**Water**
Eurofins | mgt Sample No.			**M18-Se10883**	**M18-Se10884**
Date Sampled			**Sep 07, 2018**	**Sep 07, 2018**
Test/Reference	LOR	Unit		
Organophosphorus Pesticides				
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02
Demeton-S	0.02	mg/L	< 0.02	< 0.02
Demeton-O	0.002	mg/L	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002
Omethoate	0.002	mg/L	< 0.002	< 0.002
Phorate	0.002	mg/L	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	95	87
Polychlorinated Biphenyls				
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001
Total PCB*	0.001	mg/L	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	73	67
Tetrachloro-m-xylene (surr.)	1	%	114	102

Client Sample ID			SRT-CBH015	SRT-CBH017
Sample Matrix			Water	Water
Eurofins | mgt Sample No.			M18-Se10883	M18-Se10884
Date Sampled			Sep 07, 2018	Sep 07, 2018
Test/Reference	LOR	Unit		
Phenols (Halogenated)				
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01
Phenols (non-Halogenated)				
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03
Dinoseb	0.1	mg/L	< 0.1	< 0.1
Phenol	0.003	mg/L	< 0.003	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	52	55
TRH - 2013 NEPM Fractions (after silica gel clean-up)				
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05
TRH >C16-C34 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1
TRH >C34-C40 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1
TRH - 1999 NEPM Fractions (after silica gel clean-up)				
TRH C10-C36 (Total) (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05
TRH C15-C28 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1
TRH C29-C36 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01
Chloride	1	mg/L	11	9.7
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005
Nitrate (as N)	0.02	mg/L	4.3	0.20
Sulphate (as SO4)	5	mg/L	79	21
Alkalinity (speciated)				
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	32	78
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10
Alkali Metals				
Calcium	0.5	mg/L	4.0	16
Magnesium	0.5	mg/L	5.7	8.1
Potassium	0.5	mg/L	3.8	3.5
Sodium	0.5	mg/L	27	19

Client Sample ID			SRT-CBH015	SRT-CBH017
Sample Matrix			**Water**	**Water**
Eurofins | mgt Sample No.			**M18-Se10883**	**M18-Se10884**
Date Sampled			**Sep 07, 2018**	**Sep 07, 2018**
Test/Reference	LOR	Unit		
Heavy Metals				
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.038	0.038
Lead (filtered)	0.001	mg/L	0.004	0.004
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.013	0.006
Zinc (filtered)	0.005	mg/L	0.072	0.069

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

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 - 2013 NEPM Fractions	Melbourne	Sep 13, 2018	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons	Melbourne	Sep 13, 2018	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Sep 13, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C36			
BTEX	Melbourne	Sep 13, 2018	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Eurofins | mgt Suite B7A (filtered metals)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Sep 13, 2018	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Melbourne	Sep 13, 2018	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Melbourne	Sep 13, 2018	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Sep 13, 2018	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8 filtered	Melbourne	Sep 13, 2018	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins | mgt Suite B15			
Organochlorine Pesticides	Melbourne	Sep 13, 2018	7 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Melbourne	Sep 13, 2018	7 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Melbourne	Sep 13, 2018	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
TRH - 2013 NEPM Fractions (after silica gel clean-up)	Melbourne	Sep 13, 2018	7 Day
- Method: LM-LTM-ORG2010			
TRH - 1999 NEPM Fractions (after silica gel clean-up)	Melbourne	Sep 13, 2018	7 Day
- Method: TRH C6-C36 (Silica Gel Cleanup) - MGT 100A			
Eurofins | mgt Suite B11			
Ammonia (as N)	Melbourne	Sep 13, 2018	28 Day
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Chloride	Melbourne	Sep 13, 2018	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Nitrate (as N)	Melbourne	Sep 13, 2018	28 Day
- Method: APHA 4500-NO3 Nitrate Nitrogen by FIA			
Sulphate (as SO4)	Melbourne	Sep 13, 2018	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Sep 13, 2018	14 Day
- Method: APHA 2320 Alkalinity by Titration			
Alkali Metals	Melbourne	Sep 13, 2018	180 Day
- Method: USEPA 6010 Alkali Metals			
Cyanide (total)	Melbourne	Sep 13, 2018	14 Day
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Metals M8	Melbourne	Sep 13, 2018	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

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Company Name: GHD Pty Ltd NSW
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NSW 2000

Project Name: CENTRAL
Project ID: 21-27324

Order No.:
Report #: 616629
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Sep 8, 2018 8:45 AM
Due: Sep 17, 2018
Priority: 5 Day
Contact Name: Henry Luo

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Cyanide (total)	Metals M8	Eurofins | mgt Suite B15	Eurofins | mgt Suite B11	TRH (after Silica Gel cleanup)	Eurofins | mgt Suite B7A (filtered metals)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217												
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 23736												
External Laboratory												
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**							
1	SRT-BH064	Sep 06, 2018		Water	M18-Se10871	X		X	X	X	X	
2	SRT-CBH007	Sep 06, 2018		Water	M18-Se10872	X		X	X	X	X	
3	SRT-CBH001	Sep 06, 2018		Water	M18-Se10873	X		X	X	X	X	
4	SRT-BH048	Sep 06, 2018		Water	M18-Se10874	X		X	X	X	X	
5	SRT-BH053	Sep 06, 2018		Water	M18-Se10875	X		X	X	X	X	
6	SRT-BH047	Sep 06, 2018		Water	M18-Se10876	X		X	X	X	X	
7	SRT-BH063	Sep 06, 2018		Water	M18-Se10877	X		X	X	X	X	
8	QA01	Sep 06, 2018		Water	M18-Se10878						X	
9	RB01	Sep 06, 2018		Water	M18-Se10879		X					

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217												
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 23736												
10	TRIP BLANK	Sep 06, 2018		Water	M18-Se10880							X
11	TRIP SPIKE	Sep 06, 2018		Water	M18-Se10881							X
12	SRT-BH039	Sep 07, 2018		Water	M18-Se10882	X		X	X	X	X	
13	SRT-CBH015	Sep 07, 2018		Water	M18-Se10883	X		X	X	X	X	
14	SRT-CBH017	Sep 07, 2018		Water	M18-Se10884	X		X	X	X	X	
Test Counts						10	1	10	10	10	11	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil 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. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
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							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.001			0.001	Pass	
4.4'-DDD	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDE	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDT	mg/L	< 0.0001			0.0001	Pass	
a-BHC	mg/L	< 0.0001			0.0001	Pass	
Aldrin	mg/L	< 0.0001			0.0001	Pass	
b-BHC	mg/L	< 0.0001			0.0001	Pass	
d-BHC	mg/L	< 0.0001			0.0001	Pass	
Dieldrin	mg/L	< 0.0001			0.0001	Pass	
Endosulfan I	mg/L	< 0.0001			0.0001	Pass	
Endosulfan II	mg/L	< 0.0001			0.0001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/L	< 0.0001			0.0001	Pass	
Endrin	mg/L	< 0.0001			0.0001	Pass	
Endrin aldehyde	mg/L	< 0.0001			0.0001	Pass	
Endrin ketone	mg/L	< 0.0001			0.0001	Pass	
g-BHC (Lindane)	mg/L	< 0.0001			0.0001	Pass	
Heptachlor	mg/L	< 0.0001			0.0001	Pass	
Heptachlor epoxide	mg/L	< 0.0001			0.0001	Pass	
Hexachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
Methoxychlor	mg/L	< 0.0001			0.0001	Pass	
Toxaphene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/L	< 0.002			0.002	Pass	
Bolstar	mg/L	< 0.002			0.002	Pass	
Chlorfenvinphos	mg/L	< 0.002			0.002	Pass	
Chlorpyrifos	mg/L	< 0.02			0.02	Pass	
Chlorpyrifos-methyl	mg/L	< 0.002			0.002	Pass	
Coumaphos	mg/L	< 0.02			0.02	Pass	
Demeton-S	mg/L	< 0.02			0.02	Pass	
Demeton-O	mg/L	< 0.002			0.002	Pass	
Diazinon	mg/L	< 0.002			0.002	Pass	
Dichlorvos	mg/L	< 0.002			0.002	Pass	
Dimethoate	mg/L	< 0.002			0.002	Pass	
Disulfoton	mg/L	< 0.002			0.002	Pass	
EPN	mg/L	< 0.002			0.002	Pass	
Ethion	mg/L	< 0.002			0.002	Pass	
Ethoprop	mg/L	< 0.002			0.002	Pass	
Ethyl parathion	mg/L	< 0.002			0.002	Pass	
Fenitrothion	mg/L	< 0.002			0.002	Pass	
Fensulfothion	mg/L	< 0.002			0.002	Pass	
Fenthion	mg/L	< 0.002			0.002	Pass	
Malathion	mg/L	< 0.002			0.002	Pass	
Merphos	mg/L	< 0.002			0.002	Pass	
Methyl parathion	mg/L	< 0.002			0.002	Pass	
Mevinphos	mg/L	< 0.002			0.002	Pass	
Monocrotophos	mg/L	< 0.002			0.002	Pass	
Naled	mg/L	< 0.002			0.002	Pass	
Omethoate	mg/L	< 0.002			0.002	Pass	
Phorate	mg/L	< 0.002			0.002	Pass	
Pirimiphos-methyl	mg/L	< 0.02			0.02	Pass	
Pyrazophos	mg/L	< 0.002			0.002	Pass	
Ronnel	mg/L	< 0.002			0.002	Pass	
Terbufos	mg/L	< 0.002			0.002	Pass	
Tetrachlorvinphos	mg/L	< 0.002			0.002	Pass	
Tokuthion	mg/L	< 0.002			0.002	Pass	
Trichloronate	mg/L	< 0.002			0.002	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/L	< 0.001			0.001	Pass	
Aroclor-1221	mg/L	< 0.001			0.001	Pass	
Aroclor-1232	mg/L	< 0.001			0.001	Pass	
Aroclor-1242	mg/L	< 0.001			0.001	Pass	
Aroclor-1248	mg/L	< 0.001			0.001	Pass	
Aroclor-1254	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1260	mg/L	< 0.001			0.001	Pass	
Total PCB*	mg/L	< 0.001			0.001	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4.5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.4.6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/L	< 0.1			0.1	Pass	
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2.4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Method Blank							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
Method Blank							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	mg/L	< 0.05			0.05	Pass	
TRH C15-C28 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
TRH C29-C36 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chloride	mg/L	< 1			1	Pass	
Cyanide (total)	mg/L	< 0.005			0.005	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Sulphate (as SO4)	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO3)	mg/L	< 10			10	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	90			70-130	Pass	
TRH C6-C10	%	107			70-130	Pass	
TRH >C10-C16	%	123			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	101			70-130	Pass	
TRH C10-C14	%	121			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	110			70-130	Pass	
Toluene	%	107			70-130	Pass	
Ethylbenzene	%	101			70-130	Pass	
m&p-Xylenes	%	104			70-130	Pass	
Xylenes - Total	%	103			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	94			70-130	Pass	
Acenaphthylene	%	78			70-130	Pass	
Anthracene	%	91			70-130	Pass	
Benz(a)anthracene	%	117			70-130	Pass	
Benzo(a)pyrene	%	101			70-130	Pass	
Benzo(b&j)fluoranthene	%	112			70-130	Pass	
Benzo(g.h.i)perylene	%	109			70-130	Pass	
Benzo(k)fluoranthene	%	113			70-130	Pass	
Chrysene	%	124			70-130	Pass	
Dibenz(a.h)anthracene	%	93			70-130	Pass	
Fluoranthene	%	121			70-130	Pass	
Fluorene	%	87			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	92			70-130	Pass	
Naphthalene	%	88			70-130	Pass	
Phenanthrene	%	89			70-130	Pass	
Pyrene	%	121			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	120			70-130	Pass	
4.4'-DDD	%	110			70-130	Pass	
4.4'-DDE	%	108			70-130	Pass	
4.4'-DDT	%	76			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
a-BHC	%	110			70-130	Pass	
Aldrin	%	97			70-130	Pass	
b-BHC	%	114			70-130	Pass	
d-BHC	%	102			70-130	Pass	
Dieldrin	%	114			70-130	Pass	
Endosulfan I	%	116			70-130	Pass	
Endosulfan II	%	110			70-130	Pass	
Endosulfan sulphate	%	82			70-130	Pass	
Endrin	%	98			70-130	Pass	
Endrin aldehyde	%	102			70-130	Pass	
Endrin ketone	%	98			70-130	Pass	
g-BHC (Lindane)	%	112			70-130	Pass	
Heptachlor	%	103			70-130	Pass	
Heptachlor epoxide	%	122			70-130	Pass	
Hexachlorobenzene	%	120			70-130	Pass	
Methoxychlor	%	79			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	78			70-130	Pass	
Dimethoate	%	71			70-130	Pass	
Ethion	%	92			70-130	Pass	
Fenitrothion	%	107			70-130	Pass	
Methyl parathion	%	74			70-130	Pass	
Mevinphos	%	72			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	115			30-130	Pass	
2.4-Dichlorophenol	%	97			30-130	Pass	
2.4.5-Trichlorophenol	%	86			30-130	Pass	
2.4.6-Trichlorophenol	%	93			30-130	Pass	
2.6-Dichlorophenol	%	100			30-130	Pass	
4-Chloro-3-methylphenol	%	99			30-130	Pass	
Pentachlorophenol	%	75			30-130	Pass	
Tetrachlorophenols - Total	%	65			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	98			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	97			30-130	Pass	
2-Methylphenol (o-Cresol)	%	103			30-130	Pass	
2-Nitrophenol	%	92			30-130	Pass	
2.4-Dimethylphenol	%	65			30-130	Pass	
2.4-Dinitrophenol	%	46			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	105			30-130	Pass	
4-Nitrophenol	%	65			30-130	Pass	
Dinoseb	%	105			30-130	Pass	
Phenol	%	89			30-130	Pass	
LCS - % Recovery							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	%	104			70-130	Pass	
LCS - % Recovery							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	%	104			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	101			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chloride	%	111			70-130	Pass	
Cyanide (total)	%	105			70-130	Pass	
Nitrate (as N)	%	101			70-130	Pass	
Sulphate (as SO4)	%	82			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	112			70-130	Pass	
Magnesium	%	116			70-130	Pass	
Potassium	%	99			70-130	Pass	
Sodium	%	105			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	85			80-120	Pass	
Arsenic (filtered)	%	92			80-120	Pass	
Cadmium	%	88			80-120	Pass	
Cadmium (filtered)	%	94			80-120	Pass	
Chromium	%	89			80-120	Pass	
Chromium (filtered)	%	96			80-120	Pass	
Copper	%	89			80-120	Pass	
Copper (filtered)	%	96			80-120	Pass	
Lead	%	93			80-120	Pass	
Lead (filtered)	%	101			80-120	Pass	
Mercury	%	87			75-125	Pass	
Mercury (filtered)	%	94			70-130	Pass	
Nickel	%	86			80-120	Pass	
Nickel (filtered)	%	96			80-120	Pass	
Zinc	%	96			80-120	Pass	
Zinc (filtered)	%	94			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M18-Se11137	NCP	%	79			70-130	Pass	
TRH C6-C10	M18-Se11137	NCP	%	126			70-130	Pass	
TRH >C10-C16	M18-Se15512	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M18-Se11137	NCP	%	127			70-130	Pass	
TRH C10-C14	M18-Se15512	NCP	%	85			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M18-Se11137	NCP	%	114			70-130	Pass	
Toluene	M18-Se11137	NCP	%	106			70-130	Pass	
Ethylbenzene	M18-Se11137	NCP	%	104			70-130	Pass	
m&p-Xylenes	M18-Se11137	NCP	%	104			70-130	Pass	
o-Xylene	M18-Se11137	NCP	%	96			70-130	Pass	
Xylenes - Total	M18-Se11137	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	M18-Se13337	NCP	%	81			70-130	Pass	
4.4'-DDD	M18-Se12224	NCP	%	86			70-130	Pass	
4.4'-DDE	M18-Se12224	NCP	%	79			70-130	Pass	
4.4'-DDT	M18-Se12224	NCP	%	72			70-130	Pass	
a-BHC	M18-Se12224	NCP	%	78			70-130	Pass	
Aldrin	M18-Se12224	NCP	%	70			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
b-BHC	M18-Se12224	NCP	%	77			70-130	Pass	
d-BHC	M18-Se12224	NCP	%	77			70-130	Pass	
Dieldrin	M18-Se12224	NCP	%	85			70-130	Pass	
Endosulfan I	M18-Se12224	NCP	%	76			70-130	Pass	
Endosulfan II	M18-Se12224	NCP	%	87			70-130	Pass	
Endosulfan sulphate	M18-Se12224	NCP	%	73			70-130	Pass	
Endrin	M18-Se12224	NCP	%	86			70-130	Pass	
Endrin aldehyde	M18-Se12224	NCP	%	85			70-130	Pass	
Endrin ketone	M18-Se12224	NCP	%	88			70-130	Pass	
g-BHC (Lindane)	M18-Se12224	NCP	%	76			70-130	Pass	
Heptachlor	M18-Se12224	NCP	%	73			70-130	Pass	
Heptachlor epoxide	M18-Se12224	NCP	%	87			70-130	Pass	
Hexachlorobenzene	M18-Se12224	NCP	%	83			70-130	Pass	
Methoxychlor	M18-Se12224	NCP	%	98			70-130	Pass	
Spike - % Recovery									
				Result 1					
Sulphate (as SO4)	M18-Se15594	NCP	%	79			70-130	Pass	
Spike - % Recovery									
Alkalinity (speciated)				Result 1					
Bicarbonate Alkalinity (as CaCO3)	M18-Se14689	NCP	%	104			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M18-Se10871	CP	%	86			70-130	Pass	
Cadmium (filtered)	M18-Se10871	CP	%	90			70-130	Pass	
Chromium (filtered)	M18-Se10871	CP	%	92			70-130	Pass	
Copper (filtered)	M18-Se10871	CP	%	92			70-130	Pass	
Lead (filtered)	M18-Se10871	CP	%	95			70-130	Pass	
Mercury (filtered)	M18-Se10871	CP	%	85			70-130	Pass	
Nickel (filtered)	M18-Se10871	CP	%	89			70-130	Pass	
Zinc (filtered)	M18-Se10871	CP	%	93			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M18-Se10873	CP	%	98			70-130	Pass	
Magnesium	M18-Se10873	CP	%	101			70-130	Pass	
Potassium	M18-Se10873	CP	%	95			70-130	Pass	
Sodium	M18-Se10873	CP	%	102			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	M18-Se10874	CP	%	85			70-130	Pass	
Dimethoate	M18-Se10874	CP	%	77			70-130	Pass	
Ethion	M18-Se10874	CP	%	86			70-130	Pass	
Fenitrothion	M18-Se10874	CP	%	114			70-130	Pass	
Methyl parathion	M18-Se10874	CP	%	77			70-130	Pass	
Mevinphos	M18-Se10874	CP	%	78			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M18-Se10877	CP	%	100			70-130	Pass	
Chloride	M18-Se10877	CP	%	74			70-130	Pass	
Cyanide (total)	M18-Se10877	CP	%	103			70-130	Pass	
Nitrate (as N)	M18-Se10877	CP	%	101			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M18-Se13897	NCP	%	84			75-125	Pass	
Cadmium	M18-Se13897	NCP	%	75			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chromium	M18-Se13897	NCP	%	82			75-125	Pass	
Copper	M18-Se13897	NCP	%	81			75-125	Pass	
Lead	M18-Se13897	NCP	%	77			75-125	Pass	
Mercury	M18-Se13897	NCP	%	81			70-130	Pass	
Nickel	M18-Se13897	NCP	%	78			75-125	Pass	
Zinc	M18-Se13897	NCP	%	77			75-125	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M18-Se10883	CP	%	89			70-130	Pass	
Cadmium (filtered)	M18-Se10883	CP	%	96			70-130	Pass	
Chromium (filtered)	M18-Se10883	CP	%	95			70-130	Pass	
Copper (filtered)	M18-Se10883	CP	%	92			70-130	Pass	
Lead (filtered)	M18-Se10883	CP	%	99			70-130	Pass	
Mercury (filtered)	M18-Se10883	CP	%	94			70-130	Pass	
Nickel (filtered)	M18-Se10883	CP	%	91			70-130	Pass	
Zinc (filtered)	M18-Se10883	CP	%	87			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M18-Se10623	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	M18-Se10623	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	M18-Se15510	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M18-Se15510	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M18-Se15510	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M18-Se10623	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	M18-Se15510	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M18-Se15510	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M18-Se15510	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M18-Se10623	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	M18-Se10623	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	M18-Se10623	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M18-Se10623	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	M18-Se10623	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	M18-Se10623	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	B18-Se08426	NCP	mg/L	25	25	<1	30%	Pass	
Carbonate Alkalinity (as CaCO3)	B18-Se08426	NCP	mg/L	< 10	< 10	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M18-Se10871	CP	mg/L	0.005	0.005	4.0	30%	Pass	
Cadmium (filtered)	M18-Se10871	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M18-Se10871	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	M18-Se10871	CP	mg/L	0.024	0.025	4.0	30%	Pass	
Lead (filtered)	M18-Se10871	CP	mg/L	0.002	0.002	3.0	30%	Pass	
Mercury (filtered)	M18-Se10871	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M18-Se10871	CP	mg/L	0.006	0.006	<1	30%	Pass	
Zinc (filtered)	M18-Se10871	CP	mg/L	0.032	0.032	2.0	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M18-Se10873	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	M18-Se10873	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	M18-Se10873	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	M18-Se10873	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	M18-Se10873	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M18-Se10873	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	M18-Se10873	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	M18-Se10873	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	M18-Se10873	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	M18-Se10873	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	M18-Se10873	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	M18-Se10873	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M18-Se10873	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	M18-Se10873	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	M18-Se10873	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	M18-Se10873	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M18-Se10873	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4.4'-DDD	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDE	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDT	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
a-BHC	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Aldrin	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
b-BHC	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
d-BHC	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Dieldrin	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan I	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan II	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan sulphate	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin aldehyde	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin ketone	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
g-BHC (Lindane)	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor epoxide	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Hexachlorobenzene	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Methoxychlor	M18-Se10873	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Bolstar	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorfenvinphos	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorpyrifos	M18-Se10873	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Chlorpyrifos-methyl	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Coumaphos	M18-Se10873	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-S	M18-Se10873	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-O	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Diazinon	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dichlorvos	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dimethoate	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Disulfoton	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
EPN	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethion	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Ethoprop	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethyl parathion	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenitrothion	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fensulfothion	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenthion	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Malathion	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Merphos	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methyl parathion	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Mevinphos	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Monocrotophos	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Naled	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Omethoate	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Phorate	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Pirimiphos-methyl	M18-Se10873	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Pyrazophos	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ronnel	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Terbufos	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tetrachlorvinphos	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tokuthion	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Trichloronate	M18-Se10873	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M18-Se10873	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dichlorophenol	M18-Se10873	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4.5-Trichlorophenol	M18-Se10873	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	M18-Se10873	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	M18-Se10873	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
4-Chloro-3-methylphenol	M18-Se10873	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Pentachlorophenol	M18-Se10873	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Tetrachlorophenols - Total	M18-Se10873	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M18-Se10873	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M18-Se10873	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M18-Se10873	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Nitrophenol	M18-Se10873	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dimethylphenol	M18-Se10873	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	M18-Se10873	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M18-Se10873	CP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
4-Nitrophenol	M18-Se10873	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Dinoseb	M18-Se10873	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Phenol	M18-Se10873	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M18-Se10873	CP	mg/L	8.7	8.9	2.0	30%	Pass	
Magnesium	M18-Se10873	CP	mg/L	6.8	6.9	2.0	30%	Pass	
Potassium	M18-Se10873	CP	mg/L	1.8	1.8	3.0	30%	Pass	
Sodium	M18-Se10873	CP	mg/L	24	24	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M18-Se10877	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Chloride	M18-Se10877	CP	mg/L	72	74	2.0	30%	Pass	
Cyanide (total)	M18-Se10877	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Nitrate (as N)	M18-Se10877	CP	mg/L	0.15	0.14	8.0	30%	Pass	
Sulphate (as SO4)	M18-Se10877	CP	mg/L	45	47	3.0	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-Se13897	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	M18-Se13897	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M18-Se13897	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	M18-Se13897	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	M18-Se13897	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	M18-Se13897	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	M18-Se13897	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc	M18-Se13897	NCP	mg/L	0.006	< 0.005	27	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M18-Se10883	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	M18-Se10883	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M18-Se10883	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	M18-Se10883	CP	mg/L	0.038	0.035	7.0	30%	Pass	
Lead (filtered)	M18-Se10883	CP	mg/L	0.004	0.003	7.0	30%	Pass	
Mercury (filtered)	M18-Se10883	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M18-Se10883	CP	mg/L	0.013	0.013	6.0	30%	Pass	
Zinc (filtered)	M18-Se10883	CP	mg/L	0.072	0.065	10	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
R20	This sample is a Trip Spike and therefore all results are reported as a percentage

Authorised By

Nibha Vaidya	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Michael Brancati	Senior Analyst-Inorganic (VIC)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

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

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☐ **Melbourne**
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Email: enquiries.melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Page 1 of 1

Company Name : GHD Pty Ltd, Sydney	**Contact Name :** Terry Nham	**Purchase Order :**	**COC Number :**
Office Address :	**Project Manager :** Henry Luo	**PROJECT Number :** 21-27234	**Eurofins | mgt quote ID :** GHD Rates 2018
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results :** terry.nham@ghd.com henry.luo@ghd.com	**PROJECT Name :** Central	**Data output format:** ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	TRH, BTEX, PAH, 8 Metals, Phenols (Suite B7A)	OCP, OPP, PCB (Suite B15)	TRH (with Silica Gel Cleanup)	Cyanide	Ammonia	Major Anions and Cations	TRH C6-C10 / BTEX	8 Metals	TRH, BTEX, PAH, 8 Metals (B7)	Ferrous Iron (Fe2+)	Manganese
1	SRLBH082	25/10/18	Water	X	X	X	X	X	X				X	X
2	SRT-BH047			X	X	X	X	X	X				X	X
3	SRT-BH052			X	X	X	X	X	X				X	X
4	SRT-BH059			X	X	X	X	X	X				X	X
5	SRT-CBH015			X	X	X	X	X	X				X	X
6	SRT-CBH017			X	X	X	X	X	X				X	X
7	SRT-BH053			X	X	X	X	X	X				X	X
8	QA01											X		
9	SRT-BH048	26/10/18		X	X	X	X	X	X				X	X
10	SRT-CBH001			X	X	X	X	X	X				X	X
11	SRT-BH039			X	X	X	X	X	X				X	X
12	SRT-BH063			X	X	X	X	X	X				X	X
13	QA02			Please send to ALS with attached COC										
14	RB01										X			
15	Trip Blank									X				
16	Trip Spike									X				

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

	500P	250P	125P	1LA	40mL vial	125mL A	Jar	Bag
1			4	1	2			
2			4	1	2			
3			4	1	2			
4			4	1	2			
5			4	1	2			
6			4	1	2			
7			4	1	2			
8			4	1	2			
9			4	1	2			
10			4	1	2			
11			4	1	2			
12			4	1	2			
13			4	1	2			
14			1					
15					2			
16					2			

Sample comments:

Relinquished By: Terry Nham - GHD
Date & Time : 26/10/2018
Signature:

Laboratory Staff
Received By: Suzanne
Date & Time : 26/10/2018 4:32pm
Signature:

Turn around time
1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☒ 10 DAY ☐ Other:

Method Of Shipment
☐ Courier
☒ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival:

Report number:

624838

29/10

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2 Kingston Town Close, Oakleigh, VIC 3166
Phone: +613 8564 5000 Fax: +613 8564 5090
Email: enquiries melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd, Sydney
Office Address : Level 15, 133 Castlereagh Street, Sydney NSW 2000
Contact Name : Terry Nham
Project Manager : Henry Luo
Email for results : terry.nham@ghd.com henry.luo@ghd.com
Purchase Order :
PROJECT Number : 21-27234
PROJECT Name : Central
COC Number :
Eurofins | mgt quote ID : GHD Rates 2018
Data output format: ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	TRH, BTEX, PAH, 8 Metals, Phenols (Suite B7A)	OCP, OPP, PCB (Suite B15)	TRH (with Silica Gel Cleanup)	Cyanide	Ammonia	Major Anions and Cations	TRH C6-C10 / BTEX	8 Metals	TRH, BTEX, PAH, 8 Metals (B7)	Ferrous Iron (Fe2)	Mangy. Test
1	SRL BH082	25/10/18	Water	X	X	X	X	X	X				X	X
2	SRT-BH047			X	X	X	X	X	X				X	X
3	SRT-BH054			X	X	X	X	X	X				X	X
4	SRT-BH059			X	X	X	X	X	X				X	X
5	SRT-CBH015			X	X	X	X	X	X				X	X
6	SRT-CBH017			X	X	X	X	X	X				X	X
7	SRT-BH053			X	X	X	X	X	X				X	X
8	QA01											X		
9	SRT-BH048	26/10/18		X	X	X	X	X	X				X	X
10	SRT-CBH021			X	X	X	X	X	X				X	X
11	SRT-BH039			X	X	X	X	X	X				X	X
12	SRT-BH063			X	X	X	X	X	X				X	X
13	QA02			X	X	X	X	X	X				X	X
14	RB01			Please send to ALS with attached COC							X			
15	Trip Blank									X				
16	Trip Spike									X				

Some common holding times (with correct preservation). For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
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Mercury, CrVI	28 days	Mercury, CrVI	28 days
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BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
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	250P	125P	1LA	40mL vial	125mL A	Jar	Bag
1		4	1	2			
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8		4	1	2			
9		4	1	2			
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11		4	1	2			
12		4	1	2			
13		4	1	2			
14		4	1	2			
15		1					
16				2			

Sample comments:

Relinquished By: Terry Nham - GHD
Date & Time : 26/10/2018
Signature:

Laboratory Staff
Received By: Suzanne
Date & Time : 26/10/2018 4:32pm
Signature:

Turn around time
1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☒ 10 DAY ☐ Other:

Method Of Shipment
☐ Courier
☒ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival:

Report number:

(1)

DATE RECEIVED IN SYDNEY

26/10

TAT

5 day

SAMPLES KEPT IN SYDNEY

Triplicate sample

SPECIAL INSTRUCTIONS

Sent to ALS Sydney

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☑ **Sydney**
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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Page 1 of 1

Company Name : GHD Pty Ltd, Sydney	**Contact Name :** Terry Nham	**Purchase Order :**	**COC Number :**
Office Address :	**Project Manager :** Henry Luo	**PROJECT Number :** 21-27234	**Eurofins | mgt quote ID :** GHD Rates 2018
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results :** terry.nham@ghd.com henry.luo@ghd.com	**PROJECT Name :** Central	**Data output format:** ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	TRH, BTEX, PAH, 8 Metals, Phenols (Suite B7A)	OCP, OPP, PCB (Suite B15)	TRH (with Silica Gel Cleanup)	Cyanide	Ammonia	Major Anions and Cations	TRH C6-C10 / BTEX	8 Metals	TRH, BTEX, PAH, 8 Metals (B7)	Ferrous Iron (Fe2+)	Manganese
1	SRLBH082	25/10/18	Water	X	X	X	X	X	X				X	X
2	SRT-BH047			X	X	X	X	X	X				X	X
3	SRT-BH052			X	X	X	X	X	X				X	X
4	SRT-BH059			X	X	X	X	X	X				X	X
5	SRT-CBH015			X	X	X	X	X	X				X	X
6	SRT-CBH017			X	X	X	X	X	X				X	X
7	SRT-BH053			X	X	X	X	X	X				X	X
8	QA01											X		
9	SRT-BH048	26/10/18		X	X	X	X	X	X				X	X
10	SRT-CBH001			X	X	X	X	X	X				X	X
11	SRT-BH039			X	X	X	X	X	X				X	X
12	SRT-BH063			X	X	X	X	X	X				X	X
13	QA02			Please send to ALS with attached COC										
14	RB01										X			
15	Trip Blank									X				
16	Trip Spike									X				

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
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Mercury, CrVI	28 days	Mercury, CrVI	28 days
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14			1					
15					2			
16					2			

Sample comments:

Relinquished By: Terry Nham - GHD
Date & Time : 26/10/2018
Signature:

Laboratory Staff
Received By: Suzanne
Date & Time : 26/10/2018 4:32pm
Signature:

Turn around time
1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☒ 10 DAY ☐ Other:

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Courier Consignment # :

Temperature on arrival:

Report number:

624838

29/10

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CHAIN OF CUSTODY RECORD

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PROJECT Name : Central
COC Number :
Eurofins | mgt quote ID : GHD Rates 2018
Data output format: ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number:

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11	SRT-BH039			X	X	X	X	X	X				X	X
12	SRT-BH063			X	X	X	X	X	X				X	X
13	QA02			X	X	X	X	X	X				X	X
14	RB01			Please send to ALS with attached COC							X			
15	Trip Blank									X				
16	Trip Spike									X				

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8		4	1	2			
9		4	1	2			
10		4	1	2			
11		4	1	2			
12		4	1	2			
13		4	1	2			
14		4	1	2			
15		1					
16				2			

Sample comments:

Relinquished By: Terry Nham - GHD
Date & Time : 26/10/2018
Signature:

Laboratory Staff
Received By: Suzanne
Date & Time : 26/10/2018 4:32pm
Signature:

Turn around time
1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☒ 10 DAY ☐ Other:

Method Of Shipment
☐ Courier
☒ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival:

Report number:

(1)

DATE RECEIVED IN SYDNEY

26/10

TAT

5 day

SAMPLES KEPT IN SYDNEY

Triplicate sample

SPECIAL INSTRUCTIONS

Sent to ALS Sydney

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Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Attention: **Terry Nham**

Report **624838-W**
Project name CENTRAL
Project ID 21-27234
Received Date Oct 26, 2018

Client Sample ID			**SRT-BH082**	**SRT-BH047**	**SRT-BH052**	**SRT-BH059**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M18-Oc34800**	**M18-Oc34801**	**M18-Oc34802**	**M18-Oc34803**
Date Sampled			**Oct 25, 2018**	**Oct 25, 2018**	**Oct 25, 2018**	**Oct 25, 2018**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	112	99	108	116
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			SRT-BH082	SRT-BH047	SRT-BH052	SRT-BH059
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Oc34800	M18-Oc34801	M18-Oc34802	M18-Oc34803
Date Sampled			Oct 25, 2018	Oct 25, 2018	Oct 25, 2018	Oct 25, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	107	79	60	94
p-Terphenyl-d14 (surr.)	1	%	78	98	120	128
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4.4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Toxaphene	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	98	72	89	95
Tetrachloro-m-xylene (surr.)	1	%	90	71	59	90
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			SRT-BH082	SRT-BH047	SRT-BH052	SRT-BH059
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Oc34800	M18-Oc34801	M18-Oc34802	M18-Oc34803
Date Sampled			Oct 25, 2018	Oct 25, 2018	Oct 25, 2018	Oct 25, 2018
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	60	60	74	74
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	98	72	89	95
Tetrachloro-m-xylene (surr.)	1	%	90	71	59	90
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003

Client Sample ID			SRT-BH082	SRT-BH047	SRT-BH052	SRT-BH059
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Oc34800	M18-Oc34801	M18-Oc34802	M18-Oc34803
Date Sampled			Oct 25, 2018	Oct 25, 2018	Oct 25, 2018	Oct 25, 2018
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	51	59	46	68
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Chloride	1	mg/L	16	25	22	13
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.05	mg/L	0.16	< 0.05	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	0.34	18	10	3.5
Sulphate (as SO4)	5	mg/L	36	14	20	17
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	< 20	160	38	180
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	2.9	58	14	63
Magnesium	0.5	mg/L	4.0	6.1	3.7	7.9
Potassium	0.5	mg/L	1.3	0.9	1.0	6.6
Sodium	0.5	mg/L	27	32	41	12
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	0.001
Copper (filtered)	0.001	mg/L	< 0.001	0.004	0.063	0.018
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	0.005	0.002
Manganese (filtered)	0.005	mg/L	0.054	< 0.005	0.036	< 0.005
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.001	< 0.001	0.008	0.004
Zinc (filtered)	0.005	mg/L	0.009	0.005	0.086	0.027

Client Sample ID			SRT-CBH015	SRT-CBH017	SRT-CBH053	QA01
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Oc34804	M18-Oc34805	M18-Oc34806	M18-Oc34807
Date Sampled			Oct 25, 2018	Oct 25, 2018	Oct 25, 2018	Oct 25, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	121	90	100	99
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	107	93	94	121
p-Terphenyl-d14 (surr.)	1	%	133	124	120	126
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
4.4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
4.4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
4.4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-

Client Sample ID			SRT-CBH015	SRT-CBH017	SRT-CBH053	QA01
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Oc34804	M18-Oc34805	M18-Oc34806	M18-Oc34807
Date Sampled			Oct 25, 2018	Oct 25, 2018	Oct 25, 2018	Oct 25, 2018
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Toxaphene	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Dibutylchlorendate (surr.)	1	%	100	95	87	-
Tetrachloro-m-xylene (surr.)	1	%	99	89	86	-
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
Demeton-S	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Omethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	-

Client Sample ID			SRT-CBH015	SRT-CBH017	SRT-CBH053	QA01
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Oc34804	M18-Oc34805	M18-Oc34806	M18-Oc34807
Date Sampled			Oct 25, 2018	Oct 25, 2018	Oct 25, 2018	Oct 25, 2018
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
Triphenylphosphate (surr.)	1	%	81	75	71	-
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Dibutylchlorendate (surr.)	1	%	100	95	87	-
Tetrachloro-m-xylene (surr.)	1	%	99	89	86	-
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03	-
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	-
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	-
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	-
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	-
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
Phenol-d6 (surr.)	1	%	83	73	76	-
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH >C16-C34 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C34-C40 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-

Client Sample ID			SRT-CBH015	SRT-CBH017	SRT-CBH053	QA01
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Oc34804	M18-Oc34805	M18-Oc34806	M18-Oc34807
Date Sampled			Oct 25, 2018	Oct 25, 2018	Oct 25, 2018	Oct 25, 2018
Test/Reference	LOR	Unit				
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH C15-C28 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C29-C36 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
Chloride	1	mg/L	9.8	8.8	26	-
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Ferrous Iron - Fe2+	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
Nitrate (as N)	0.02	mg/L	2.7	0.62	0.39	-
Sulphate (as SO4)	5	mg/L	49	19	27	-
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	49	65	52	-
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	-
Alkali Metals						
Calcium	0.5	mg/L	3.1	13	5.1	-
Magnesium	0.5	mg/L	4.8	6.0	4.9	-
Potassium	0.5	mg/L	3.2	2.9	2.5	-
Sodium	0.5	mg/L	35	14	33	-
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.034	0.081	0.004	< 0.001
Lead (filtered)	0.001	mg/L	0.004	0.004	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	5.2	0.85	1.00	-
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.016	0.010	0.046	0.001
Zinc (filtered)	0.005	mg/L	0.073	0.12	0.022	0.009

Client Sample ID			SRT-BH048	SRT-CBH001	SRT-BH039	SRT-BH063
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Oc34808	M18-Oc34809	M18-Oc34810	M18-Oc34811
Date Sampled			Oct 25, 2018	Oct 25, 2018	Oct 25, 2018	Oct 25, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1

Client Sample ID			SRT-BH048	SRT-CBH001	SRT-BH039	SRT-BH063
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Oc34808	M18-Oc34809	M18-Oc34810	M18-Oc34811
Date Sampled			Oct 25, 2018	Oct 25, 2018	Oct 25, 2018	Oct 25, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	118	112	110	103
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	87	89	83	128
p-Terphenyl-d14 (surr.)	1	%	105	120	114	83
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4.4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001

Client Sample ID			SRT-BH048	SRT-CBH001	SRT-BH039	SRT-BH063
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Oc34808	M18-Oc34809	M18-Oc34810	M18-Oc34811
Date Sampled			Oct 25, 2018	Oct 25, 2018	Oct 25, 2018	Oct 25, 2018
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Toxaphene	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	75	84	72	117
Tetrachloro-m-xylene (surr.)	1	%	79	87	81	118
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	60	70	60	96

Client Sample ID			SRT-BH048	SRT-CBH001	SRT-BH039	SRT-BH063
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Oc34808	M18-Oc34809	M18-Oc34810	M18-Oc34811
Date Sampled			Oct 25, 2018	Oct 25, 2018	Oct 25, 2018	Oct 25, 2018
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	75	84	72	117
Tetrachloro-m-xylene (surr.)	1	%	79	87	81	118
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	63	64	25	104
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	1.0	< 0.01
Chloride	1	mg/L	34	17	45	53
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	0.12	7.1	0.05	0.09
Sulphate (as SO4)	5	mg/L	48	32	720	53

Client Sample ID			SRT-BH048	SRT-CBH001	SRT-BH039	SRT-BH063
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-Oc34808	M18-Oc34809	M18-Oc34810	M18-Oc34811
Date Sampled			Oct 25, 2018	Oct 25, 2018	Oct 25, 2018	Oct 25, 2018
Test/Reference	LOR	Unit				
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	270
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	70	< 10
Alkali Metals						
Calcium	0.5	mg/L	3.7	5.9	460	50
Magnesium	0.5	mg/L	1.8	4.4	< 0.5	30
Potassium	0.5	mg/L	1.6	1.6	110	5.5
Sodium	0.5	mg/L	39	24	98	68
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.13	0.13	0.008	0.12
Lead (filtered)	0.001	mg/L	0.006	0.004	< 0.001	0.005
Manganese (filtered)	0.005	mg/L	0.55	0.62	< 0.005	0.049
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.017	0.014	0.006	0.083
Zinc (filtered)	0.005	mg/L	0.18	0.22	0.027	0.21

Client Sample ID			RB01	TRIP BLANK	[R20]TRIP SPIKE
Sample Matrix			Water	Water	Water
Eurofins | mgt Sample No.			M18-Oc34812	M18-Oc34813	M18-Oc34814
Date Sampled			Oct 25, 2018	Oct 25, 2018	Oct 25, 2018
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.01	mg/L	-	< 0.01	89
TRH C6-C10	0.02	mg/L	-	< 0.02	82
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	-	< 0.02	-
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	0.02	mg/L	-	< 0.02	82
BTEX					
Benzene	0.001	mg/L	-	< 0.001	100
Toluene	0.001	mg/L	-	< 0.001	98
Ethylbenzene	0.001	mg/L	-	< 0.001	110
m&p-Xylenes	0.002	mg/L	-	< 0.002	99
o-Xylene	0.001	mg/L	-	< 0.001	110
Xylenes - Total	0.003	mg/L	-	< 0.003	100
4-Bromofluorobenzene (surr.)	1	%	-	112	102
Heavy Metals					
Arsenic	0.001	mg/L	< 0.001	-	-
Cadmium	0.0002	mg/L	< 0.0002	-	-
Chromium	0.001	mg/L	< 0.001	-	-
Copper	0.001	mg/L	< 0.001	-	-
Lead	0.001	mg/L	< 0.001	-	-
Mercury	0.0001	mg/L	< 0.0001	-	-
Nickel	0.001	mg/L	< 0.001	-	-
Zinc	0.005	mg/L	< 0.005	-	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

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 - 2013 NEPM Fractions	Melbourne	Oct 30, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Melbourne	Oct 30, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Oct 31, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Oct 30, 2018	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Eurofins | mgt Suite B7A (filtered metals)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Oct 31, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Oct 31, 2018	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Melbourne	Oct 31, 2018	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Oct 31, 2018	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8 filtered	Melbourne	Oct 30, 2018	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins | mgt Suite B15			
Organochlorine Pesticides	Melbourne	Oct 31, 2018	7 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Melbourne	Oct 31, 2018	7 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Melbourne	Oct 31, 2018	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
TRH - 2013 NEPM Fractions (after silica gel clean-up)	Melbourne	Oct 31, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
TRH - 1999 NEPM Fractions (after silica gel clean-up)	Melbourne	Oct 31, 2018	7 Day
- Method: TRH C6-C36 (Silica Gel Cleanup) - MGT 100A			
Major Cations			
Ammonia (as N)	Melbourne	Oct 30, 2018	28 Day
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Alkali Metals	Melbourne	Oct 30, 2018	180 Day
- Method: LTM-MET-3010 Alkali Metals S Si and P by ICP-AES			
Major Anions			
Chloride	Melbourne	Nov 02, 2018	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Nitrate (as N)	Melbourne	Oct 30, 2018	28 Day
- Method: APHA 4500-NO3 Nitrate Nitrogen by FIA			
Sulphate (as SO4)	Melbourne	Nov 02, 2018	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Oct 30, 2018	14 Day
- Method: APHA 2320 Alkalinity by Titration			
Cyanide (total)	Melbourne	Oct 30, 2018	14 Day
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Ferrous Iron - Fe2+	Melbourne	Oct 30, 2018	7 Days
- Method: LTM-INO-4190 Ferrous Iron in Water by Discrete Analyser			
Metals M8	Melbourne	Oct 30, 2018	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

Description	Testing Site	Extracted	Holding Time
Heavy Metals (filtered)	Melbourne	Oct 30, 2018	180 Day

- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS

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Company Name: GHD Pty Ltd NSW
Address: Level 15, 133 Castlereagh Street
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NSW 2000

Project Name: CENTRAL
Project ID: 21-27234

Order No.:
Report #: 624838
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Oct 26, 2018 4:32 PM
Due: Nov 2, 2018
Priority: 5 Day
Contact Name: Terry Nham

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	Metals M8	Eurofins | mgt Suite B15	Major Anions	Major Cations	TRH (after Silica Gel cleanup)	Eurofins | mgt Suite B7 (filtered metals)	Eurofins | mgt Suite B7A (filtered metals)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																
Brisbane Laboratory - NATA Site # 20794																
Perth Laboratory - NATA Site # 23736																
External Laboratory																
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
1	SRT-BH082	Oct 25, 2018		Water	M18-Oc34800	X	X	X		X	X	X	X		X	
2	SRT-BH047	Oct 25, 2018		Water	M18-Oc34801	X	X	X		X	X	X	X		X	
3	SRT-BH052	Oct 25, 2018		Water	M18-Oc34802	X	X	X		X	X	X	X		X	
4	SRT-BH059	Oct 25, 2018		Water	M18-Oc34803	X	X	X		X	X	X	X		X	
5	SRT-CBH015	Oct 25, 2018		Water	M18-Oc34804	X	X	X		X	X	X	X		X	
6	SRT-CBH017	Oct 25, 2018		Water	M18-Oc34805	X	X	X		X	X	X	X		X	
7	SRT-CBH053	Oct 25, 2018		Water	M18-Oc34806	X	X	X		X	X	X	X		X	
8	QA01	Oct 25, 2018		Water	M18-Oc34807									X		
9	SRT-BH048	Oct 25, 2018		Water	M18-Oc34808	X	X	X		X	X	X	X		X	

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Company Name: GHD Pty Ltd NSW
Address: Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Project Name: CENTRAL
Project ID: 21-27234

Order No.:
Report #: 624838
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Oct 26, 2018 4:32 PM
Due: Nov 2, 2018
Priority: 5 Day
Contact Name: Terry Nham

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	Metals M8	Eurofins | mgt Suite B15	Major Anions	Major Cations	TRH (after Silica Gel cleanup)	Eurofins | mgt Suite B7 (filtered metals)	Eurofins | mgt Suite B7A (filtered metals)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																
Brisbane Laboratory - NATA Site # 20794																
Perth Laboratory - NATA Site # 23736																
10	SRT-CBH001	Oct 25, 2018		Water	M18-Oc34809	X	X	X		X	X	X	X		X	
11	SRT-BH039	Oct 25, 2018		Water	M18-Oc34810	X	X	X		X	X	X	X		X	
12	SRT-BH063	Oct 25, 2018		Water	M18-Oc34811	X	X	X		X	X	X	X		X	
13	RB01	Oct 25, 2018		Water	M18-Oc34812				X							
14	TRIP BLANK	Oct 25, 2018		Water	M18-Oc34813											X
15	TRIP SPIKE	Oct 25, 2018		Water	M18-Oc34814											X
Test Counts						11	11	11	1	11	11	11	11	1	11	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil 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. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	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							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
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							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.001			0.001	Pass	
4.4'-DDD	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDE	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDT	mg/L	< 0.0001			0.0001	Pass	
a-BHC	mg/L	< 0.0001			0.0001	Pass	
Aldrin	mg/L	< 0.0001			0.0001	Pass	
b-BHC	mg/L	< 0.0001			0.0001	Pass	
d-BHC	mg/L	< 0.0001			0.0001	Pass	
Dieldrin	mg/L	< 0.0001			0.0001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan I	mg/L	< 0.0001			0.0001	Pass	
Endosulfan II	mg/L	< 0.0001			0.0001	Pass	
Endosulfan sulphate	mg/L	< 0.0001			0.0001	Pass	
Endrin	mg/L	< 0.0001			0.0001	Pass	
Endrin aldehyde	mg/L	< 0.0001			0.0001	Pass	
Endrin ketone	mg/L	< 0.0001			0.0001	Pass	
g-BHC (Lindane)	mg/L	< 0.0001			0.0001	Pass	
Heptachlor	mg/L	< 0.0001			0.0001	Pass	
Heptachlor epoxide	mg/L	< 0.0001			0.0001	Pass	
Hexachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
Methoxychlor	mg/L	< 0.0001			0.0001	Pass	
Toxaphene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/L	< 0.002			0.002	Pass	
Bolstar	mg/L	< 0.002			0.002	Pass	
Chlorfenvinphos	mg/L	< 0.002			0.002	Pass	
Chlorpyrifos	mg/L	< 0.02			0.02	Pass	
Chlorpyrifos-methyl	mg/L	< 0.002			0.002	Pass	
Coumaphos	mg/L	< 0.02			0.02	Pass	
Demeton-S	mg/L	< 0.02			0.02	Pass	
Demeton-O	mg/L	< 0.002			0.002	Pass	
Diazinon	mg/L	< 0.002			0.002	Pass	
Dichlorvos	mg/L	< 0.002			0.002	Pass	
Dimethoate	mg/L	< 0.002			0.002	Pass	
Disulfoton	mg/L	< 0.002			0.002	Pass	
EPN	mg/L	< 0.002			0.002	Pass	
Ethion	mg/L	< 0.002			0.002	Pass	
Ethoprop	mg/L	< 0.002			0.002	Pass	
Ethyl parathion	mg/L	< 0.002			0.002	Pass	
Fenitrothion	mg/L	< 0.002			0.002	Pass	
Fensulfothion	mg/L	< 0.002			0.002	Pass	
Fenthion	mg/L	< 0.002			0.002	Pass	
Malathion	mg/L	< 0.002			0.002	Pass	
Merphos	mg/L	< 0.002			0.002	Pass	
Methyl parathion	mg/L	< 0.002			0.002	Pass	
Mevinphos	mg/L	< 0.002			0.002	Pass	
Monocrotophos	mg/L	< 0.002			0.002	Pass	
Naled	mg/L	< 0.002			0.002	Pass	
Omethoate	mg/L	< 0.002			0.002	Pass	
Phorate	mg/L	< 0.002			0.002	Pass	
Pirimiphos-methyl	mg/L	< 0.02			0.02	Pass	
Pyrazophos	mg/L	< 0.002			0.002	Pass	
Ronnel	mg/L	< 0.002			0.002	Pass	
Terbufos	mg/L	< 0.002			0.002	Pass	
Tetrachlorvinphos	mg/L	< 0.002			0.002	Pass	
Tokuthion	mg/L	< 0.002			0.002	Pass	
Trichloronate	mg/L	< 0.002			0.002	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/L	< 0.001			0.001	Pass	
Aroclor-1221	mg/L	< 0.001			0.001	Pass	
Aroclor-1232	mg/L	< 0.001			0.001	Pass	
Aroclor-1242	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1248	mg/L	< 0.001			0.001	Pass	
Aroclor-1254	mg/L	< 0.001			0.001	Pass	
Aroclor-1260	mg/L	< 0.001			0.001	Pass	
Total PCB*	mg/L	< 0.001			0.001	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4.5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.4.6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/L	< 0.1			0.1	Pass	
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2.4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Method Blank							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
Method Blank							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	mg/L	< 0.05			0.05	Pass	
TRH C15-C28 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
TRH C29-C36 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chloride	mg/L	< 1			1	Pass	
Cyanide (total)	mg/L	< 0.005			0.005	Pass	
Ferrous Iron - Fe2+	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Sulphate (as SO4)	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO3)	mg/L	< 10			10	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	111			70-130	Pass	
Naphthalene	%	111			70-130	Pass	
TRH C6-C10	%	117			70-130	Pass	
TRH C6-C10	%	117			70-130	Pass	
TRH >C10-C16	%	77			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	117			70-130	Pass	
TRH C10-C14	%	75			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	118			70-130	Pass	
Toluene	%	107			70-130	Pass	
Ethylbenzene	%	103			70-130	Pass	
m&p-Xylenes	%	101			70-130	Pass	
Xylenes - Total	%	103			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	119			70-130	Pass	
Acenaphthylene	%	115			70-130	Pass	
Anthracene	%	95			70-130	Pass	
Benz(a)anthracene	%	128			70-130	Pass	
Benzo(a)pyrene	%	112			70-130	Pass	
Benzo(b&j)fluoranthene	%	118			70-130	Pass	
Benzo(g.h.i)perylene	%	101			70-130	Pass	
Benzo(k)fluoranthene	%	114			70-130	Pass	
Chrysene	%	130			70-130	Pass	
Dibenz(a.h)anthracene	%	97			70-130	Pass	
Fluoranthene	%	111			70-130	Pass	
Fluorene	%	103			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	99			70-130	Pass	
Naphthalene	%	102			70-130	Pass	
Phenanthrene	%	105			70-130	Pass	
Pyrene	%	113			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	101			70-130	Pass	
4.4'-DDD	%	101			70-130	Pass	
4.4'-DDE	%	125			70-130	Pass	
4.4'-DDT	%	98			70-130	Pass	
a-BHC	%	118			70-130	Pass	
Aldrin	%	102			70-130	Pass	
b-BHC	%	116			70-130	Pass	
d-BHC	%	114			70-130	Pass	
Dieldrin	%	124			70-130	Pass	
Endosulfan I	%	91			70-130	Pass	
Endosulfan II	%	120			70-130	Pass	
Endosulfan sulphate	%	91			70-130	Pass	
Endrin	%	112			70-130	Pass	
Endrin aldehyde	%	87			70-130	Pass	
Endrin ketone	%	107			70-130	Pass	
g-BHC (Lindane)	%	125			70-130	Pass	
Heptachlor	%	119			70-130	Pass	
Heptachlor epoxide	%	101			70-130	Pass	
Hexachlorobenzene	%	118			70-130	Pass	
Methoxychlor	%	77			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	103			70-130	Pass	
Dimethoate	%	93			70-130	Pass	
Ethion	%	85			70-130	Pass	
Fenitrothion	%	90			70-130	Pass	
Methyl parathion	%	105			70-130	Pass	
Mevinphos	%	116			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	101			30-130	Pass	
2.4-Dichlorophenol	%	104			30-130	Pass	
2.4.5-Trichlorophenol	%	90			30-130	Pass	
2.4.6-Trichlorophenol	%	111			30-130	Pass	
2.6-Dichlorophenol	%	102			30-130	Pass	
4-Chloro-3-methylphenol	%	109			30-130	Pass	
Pentachlorophenol	%	69			30-130	Pass	
Tetrachlorophenols - Total	%	107			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	74			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	111			30-130	Pass	
2-Methylphenol (o-Cresol)	%	100			30-130	Pass	
2-Nitrophenol	%	81			30-130	Pass	
2.4-Dimethylphenol	%	68			30-130	Pass	
2.4-Dinitrophenol	%	46			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	101			30-130	Pass	
4-Nitrophenol	%	76			30-130	Pass	
Dinoseb	%	81			30-130	Pass	
Phenol	%	74			30-130	Pass	
LCS - % Recovery							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH >C10-C16 (after silica gel clean-up)	%	77			70-130	Pass	
LCS - % Recovery							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	%	75			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	95			70-130	Pass	
Chloride	%	129			70-130	Pass	
Cyanide (total)	%	114			70-130	Pass	
Ferrous Iron - Fe2+	%	81			70-130	Pass	
Nitrate (as N)	%	96			70-130	Pass	
Sulphate (as SO4)	%	108			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO3)	%	92			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	108			70-130	Pass	
Magnesium	%	108			70-130	Pass	
Potassium	%	103			70-130	Pass	
Sodium	%	99			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	96			80-120	Pass	
Arsenic (filtered)	%	99			80-120	Pass	
Cadmium	%	98			80-120	Pass	
Cadmium (filtered)	%	103			80-120	Pass	
Chromium	%	98			80-120	Pass	
Chromium (filtered)	%	102			80-120	Pass	
Copper	%	99			80-120	Pass	
Copper (filtered)	%	102			80-120	Pass	
Lead	%	99			80-120	Pass	
Lead (filtered)	%	102			80-120	Pass	
Manganese (filtered)	%	101			80-120	Pass	
Mercury	%	90			75-125	Pass	
Mercury (filtered)	%	99			70-130	Pass	
Nickel	%	100			80-120	Pass	
Nickel (filtered)	%	103			80-120	Pass	
Zinc	%	97			80-120	Pass	
Zinc (filtered)	%	100			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M18-Oc33002	NCP	%	118			70-130	Pass	
Naphthalene	M18-Oc33002	NCP	%	118			70-130	Pass	
TRH C6-C10	M18-Oc33002	NCP	%	127			70-130	Pass	
TRH C6-C10	M18-Oc33002	NCP	%	127			70-130	Pass	
TRH >C10-C16	S18-Oc32898	NCP	%	85			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M18-Oc33002	NCP	%	127			70-130	Pass	
TRH C10-C14	S18-Oc32898	NCP	%	81			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M18-Oc33002	NCP	%	106			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Toluene	M18-Oc33002	NCP	%	110			70-130	Pass	
Ethylbenzene	M18-Oc33002	NCP	%	113			70-130	Pass	
m&p-Xylenes	M18-Oc33002	NCP	%	113			70-130	Pass	
o-Xylene	M18-Oc33002	NCP	%	115			70-130	Pass	
Xylenes - Total	M18-Oc33002	NCP	%	113			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Naphthalene	M18-Oc36881	NCP	%	95			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	M18-Oc34276	NCP	%	80			70-130	Pass	
4.4'-DDD	M18-Oc34276	NCP	%	73			70-130	Pass	
4.4'-DDE	M18-Oc34276	NCP	%	90			70-130	Pass	
4.4'-DDT	M18-Oc34276	NCP	%	74			70-130	Pass	
a-BHC	M18-Oc34276	NCP	%	81			70-130	Pass	
Aldrin	M18-Oc34276	NCP	%	72			70-130	Pass	
b-BHC	M18-Oc34276	NCP	%	80			70-130	Pass	
d-BHC	M18-Oc34276	NCP	%	91			70-130	Pass	
Dieldrin	M18-Oc34276	NCP	%	92			70-130	Pass	
Endosulfan I	M18-Oc34276	NCP	%	93			70-130	Pass	
Endosulfan II	M18-Oc34276	NCP	%	98			70-130	Pass	
Endosulfan sulphate	M18-Oc33704	NCP	%	85			70-130	Pass	
Endrin	M18-Oc34276	NCP	%	81			70-130	Pass	
Endrin aldehyde	M18-Oc34276	NCP	%	71			70-130	Pass	
Endrin ketone	M18-Oc34276	NCP	%	86			70-130	Pass	
g-BHC (Lindane)	M18-Oc34276	NCP	%	95			70-130	Pass	
Heptachlor	M18-Oc34276	NCP	%	71			70-130	Pass	
Heptachlor epoxide	M18-Oc34276	NCP	%	82			70-130	Pass	
Hexachlorobenzene	M18-Oc34276	NCP	%	75			70-130	Pass	
Methoxychlor	M18-Oc33704	NCP	%	91			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	P18-Oc31985	NCP	%	93			70-130	Pass	
Dimethoate	P18-Oc31985	NCP	%	79			70-130	Pass	
Ethion	P18-Oc31985	NCP	%	80			70-130	Pass	
Fenitrothion	P18-Oc31985	NCP	%	83			70-130	Pass	
Methyl parathion	P18-Oc31985	NCP	%	79			70-130	Pass	
Mevinphos	P18-Oc31985	NCP	%	79			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M18-Oc36881	NCP	%	77			30-130	Pass	
2.4-Dichlorophenol	M18-Oc36881	NCP	%	89			30-130	Pass	
2.4.5-Trichlorophenol	M18-Oc36881	NCP	%	67			30-130	Pass	
2.4.6-Trichlorophenol	M18-Oc36881	NCP	%	104			30-130	Pass	
2.6-Dichlorophenol	M18-Oc36881	NCP	%	83			30-130	Pass	
4-Chloro-3-methylphenol	M18-Oc36881	NCP	%	88			30-130	Pass	
Pentachlorophenol	M18-Oc36881	NCP	%	58			30-130	Pass	
Tetrachlorophenols - Total	M18-Oc36881	NCP	%	80			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M18-Oc36881	NCP	%	78			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M18-Oc36881	NCP	%	65			30-130	Pass	
2-Methylphenol (o-Cresol)	M18-Oc36881	NCP	%	70			30-130	Pass	
2-Nitrophenol	M18-Oc36881	NCP	%	73			30-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2.4-Dimethylphenol	M18-Oc36881	NCP	%	64			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M18-Oc36881	NCP	%	66			30-130	Pass	
Dinoseb	M18-Oc36881	NCP	%	77			30-130	Pass	
Phenol	M18-Oc36881	NCP	%	38			30-130	Pass	
Spike - % Recovery									
				Result 1					
Chloride	B18-Oc35197	NCP	%	96			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M18-Oc34800	CP	%	100			70-130	Pass	
Magnesium	M18-Oc34800	CP	%	101			70-130	Pass	
Potassium	M18-Oc34800	CP	%	90			70-130	Pass	
Sodium	M18-Oc34800	CP	%	100			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M18-Oc34800	CP	%	103			70-130	Pass	
Cadmium (filtered)	M18-Oc34800	CP	%	106			70-130	Pass	
Chromium (filtered)	M18-Oc34800	CP	%	105			70-130	Pass	
Copper (filtered)	M18-Oc34800	CP	%	106			70-130	Pass	
Lead (filtered)	M18-Oc34800	CP	%	104			70-130	Pass	
Manganese (filtered)	M18-Oc34800	CP	%	106			70-130	Pass	
Mercury (filtered)	M18-Oc34800	CP	%	98			70-130	Pass	
Nickel (filtered)	M18-Oc34800	CP	%	104			70-130	Pass	
Zinc (filtered)	M18-Oc34800	CP	%	109			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M18-Oc34803	CP	%	104			70-130	Pass	
Nitrate (as N)	M18-Oc34803	CP	%	74			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-Oc34804	CP	%	70			70-130	Pass	
Acenaphthylene	M18-Oc34804	CP	%	74			70-130	Pass	
Anthracene	M18-Oc34804	CP	%	77			70-130	Pass	
Benz(a)anthracene	M18-Oc34804	CP	%	104			70-130	Pass	
Benzo(a)pyrene	M18-Oc34804	CP	%	95			70-130	Pass	
Benzo(b&j)fluoranthene	M18-Oc34804	CP	%	98			70-130	Pass	
Benzo(g.h.i)perylene	M18-Oc34804	CP	%	93			70-130	Pass	
Benzo(k)fluoranthene	M18-Oc34804	CP	%	97			70-130	Pass	
Chrysene	M18-Oc34804	CP	%	100			70-130	Pass	
Dibenz(a.h)anthracene	M18-Oc34804	CP	%	91			70-130	Pass	
Fluoranthene	M18-Oc34804	CP	%	91			70-130	Pass	
Fluorene	M18-Oc34804	CP	%	73			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M18-Oc34804	CP	%	93			70-130	Pass	
Phenanthrene	M18-Oc34804	CP	%	81			70-130	Pass	
Pyrene	M18-Oc34804	CP	%	94			70-130	Pass	
Spike - % Recovery									
				Result 1					
Sulphate (as SO4)	M18-Oc34806	CP	%	107			70-130	Pass	
Spike - % Recovery									
				Result 1					
Cyanide (total)	M18-Oc34810	CP	%	117			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M18-Oc34810	CP	%	103			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cadmium (filtered)	M18-Oc34810	CP	%	101			70-130	Pass	
Chromium (filtered)	M18-Oc34810	CP	%	101			70-130	Pass	
Copper (filtered)	M18-Oc34810	CP	%	100			70-130	Pass	
Lead (filtered)	M18-Oc34810	CP	%	99			70-130	Pass	
Manganese (filtered)	M18-Oc34810	CP	%	102			70-130	Pass	
Nickel (filtered)	M18-Oc34810	CP	%	99			70-130	Pass	
Zinc (filtered)	M18-Oc34810	CP	%	101			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ferrous Iron - Fe2+	M18-Oc34811	CP	%	94			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M18-Oc34811	CP	%	117			70-130	Pass	
Magnesium	M18-Oc34811	CP	%	116			70-130	Pass	
Potassium	M18-Oc34811	CP	%	99			70-130	Pass	
Sodium	M18-Oc34811	CP	%	114			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	B18-Oc35228	NCP	%	100			75-125	Pass	
Cadmium	B18-Oc35228	NCP	%	89			75-125	Pass	
Chromium	B18-Oc35228	NCP	%	93			75-125	Pass	
Copper	B18-Oc35228	NCP	%	93			75-125	Pass	
Lead	B18-Oc35228	NCP	%	89			75-125	Pass	
Mercury	B18-Oc35228	NCP	%	85			70-130	Pass	
Nickel	B18-Oc35228	NCP	%	95			75-125	Pass	
Zinc	B18-Oc35228	NCP	%	96			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	P18-Oc32031	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	P18-Oc32031	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	M18-Oc32745	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M18-Oc32745	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M18-Oc32745	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	P18-Oc32031	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	M18-Oc32745	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M18-Oc32745	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M18-Oc32745	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	P18-Oc32031	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	P18-Oc32031	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	P18-Oc32031	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	P18-Oc32031	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	P18-Oc32031	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	P18-Oc32031	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M18-Oc34800	CP	mg/L	2.9	2.9	1.0	30%	Pass	
Magnesium	M18-Oc34800	CP	mg/L	4.0	4.0	2.0	30%	Pass	
Potassium	M18-Oc34800	CP	mg/L	1.3	1.3	1.0	30%	Pass	
Sodium	M18-Oc34800	CP	mg/L	27	28	2.0	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M18-Oc34800	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	M18-Oc34800	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M18-Oc34800	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	M18-Oc34800	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	M18-Oc34800	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	M18-Oc34800	CP	mg/L	0.054	0.054	1.0	30%	Pass	
Mercury (filtered)	M18-Oc34800	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M18-Oc34800	CP	mg/L	0.001	0.001	<1	30%	Pass	
Zinc (filtered)	M18-Oc34800	CP	mg/L	0.009	0.009	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M18-Oc34803	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	M18-Oc34803	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	M18-Oc34803	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	M18-Oc34803	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	M18-Oc34803	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M18-Oc34803	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	M18-Oc34803	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	M18-Oc34803	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	M18-Oc34803	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	M18-Oc34803	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	M18-Oc34803	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	M18-Oc34803	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M18-Oc34803	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	M18-Oc34803	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	M18-Oc34803	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M18-Oc34803	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4.4'-DDD	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDE	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDT	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
a-BHC	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Aldrin	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
b-BHC	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
d-BHC	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Dieldrin	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan I	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan II	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan sulphate	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin aldehyde	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin ketone	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
g-BHC (Lindane)	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor epoxide	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Hexachlorobenzene	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Methoxychlor	M18-Oc34803	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Bolstar	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorfenvinphos	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorpyrifos	M18-Oc34803	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Chlorpyrifos-methyl	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Coumaphos	M18-Oc34803	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-S	M18-Oc34803	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-O	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Diazinon	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dichlorvos	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dimethoate	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Disulfoton	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
EPN	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethion	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethoprop	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethyl parathion	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenitrothion	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fensulfothion	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenthion	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Malathion	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Merphos	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methyl parathion	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Mevinphos	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Monocrotophos	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Naled	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Omethoate	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Phorate	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Pirimiphos-methyl	M18-Oc34803	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Pyrazophos	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ronnel	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Terbufos	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tetrachlorvinphos	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tokuthion	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Trichloronate	M18-Oc34803	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M18-Oc34803	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dichlorophenol	M18-Oc34803	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4.5-Trichlorophenol	M18-Oc34803	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	M18-Oc34803	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	M18-Oc34803	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
4-Chloro-3-methylphenol	M18-Oc34803	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Pentachlorophenol	M18-Oc34803	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Tetrachlorophenols - Total	M18-Oc34803	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M18-Oc34803	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M18-Oc34803	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M18-Oc34803	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Nitrophenol	M18-Oc34803	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dimethylphenol	M18-Oc34803	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	M18-Oc34803	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M18-Oc34803	CP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
4-Nitrophenol	M18-Oc34803	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Dinoseb	M18-Oc34803	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Phenol	M18-Oc34803	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M18-Oc34803	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Nitrate (as N)	M18-Oc34803	CP	mg/L	3.5	3.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	M18-Oc34805	CP	mg/L	8.8	13	40	30%	Fail	Q15
Sulphate (as SO4)	M18-Oc34805	CP	mg/L	19	19	1.9	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M18-Oc34806	CP	mg/L	52	52	1.0	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M18-Oc34806	CP	mg/L	< 10	< 10	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Cyanide (total)	M18-Oc34810	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M18-Oc34810	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	M18-Oc34810	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M18-Oc34810	CP	mg/L	0.001	0.001	2.0	30%	Pass	
Copper (filtered)	M18-Oc34810	CP	mg/L	0.008	0.008	2.0	30%	Pass	
Lead (filtered)	M18-Oc34810	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	M18-Oc34810	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Mercury (filtered)	M18-Oc34810	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M18-Oc34810	CP	mg/L	0.006	0.007	5.0	30%	Pass	
Zinc (filtered)	M18-Oc34810	CP	mg/L	0.027	0.032	18	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ferrous Iron - Fe2+	M18-Oc34811	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M18-Oc34811	CP	mg/L	50	50	<1	30%	Pass	
Magnesium	M18-Oc34811	CP	mg/L	30	30	<1	30%	Pass	
Potassium	M18-Oc34811	CP	mg/L	5.5	5.6	1.0	30%	Pass	
Sodium	M18-Oc34811	CP	mg/L	68	68	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	B18-Oc35228	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	B18-Oc35228	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	B18-Oc35228	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	B18-Oc35228	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	B18-Oc35228	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	B18-Oc35228	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	B18-Oc35228	NCP	mg/L	0.003	0.003	2.0	30%	Pass	
Zinc	B18-Oc35228	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.
R20	This sample is a Trip Spike and therefore all results are reported as a percentage

Authorised By

Nibha Vaidya	Analytical Services Manager
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Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

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

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS Page: 1 of 1

Company Name: GHD Pty Ltd, Sydney	**Contact Name:** Terry Nham	**Purchase Order:**	**COC Number:**
Office Address: Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Project Manager:** Henry Lau	**PROJECT Number:** 21-37447	**Eurofins | mgt quote ID:** EHS Rates 2015
	Email for results: terry.nham@ghd.com; henry.lau@ghd.com	**PROJECT Name:** Gemtree	**Data output format:** ESDAT

Special Directions & Comments:

Eurofins \| mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	TRH, BTEX, PAH, 9 Metals, Phenols (Suite E7A)	OCP, OPP, PCB (Suite B4b)	TRH (with Silica Gel Cleanup)	Cyanide	Ammonia	Major Anions and Cations	TRH C6-C10 / BTEX	8 Metals	TRH, BTEX, PAH & Metals (B7)
1	SB1_BH1_2.2	24/11/18	Soil	X	X	X	X	X	X			
2	SB1_BH1_0.1			X	X	X	X	X	X			
3	SB1_BH1_4.5			X	X	X	X	X	X			
4	SB1_BH1_0.1			X	X	X	X	X	X			
5	SB1_BH1_2.2			X	X	X	X	X	X			
6	SB1_BH1_4.5			X	X	X	X	X	X			
7	SB1_BH1_0.1			X	X	X	X	X	X			
8	SB1_BH1_1.5	23/11/18		X	X	X	X	X	X			
9	SB1_BH1_3.5	23/11/18		X	X	X	X	X	X			
10	BH1_1	24/11/18										X
11	BH1_0.1	24/11/18		Please put this sample on hold								
12	BH1	24/11/18									X	
13	Trip Blank	24/11/18								X		
14	Trip Spike	24/11/18								X		
15												
16												

Some common holding times (with correct preservation).
For further information, go to the lab website

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, Cr VI	28 days	Mercury, Cr VI	28 days
Microbiological testing	24 hours	Microbiological testing	7 days
BOD, Nitrate, Nitrite, TOC IV	2 days	Anions	28 days
Solids, TSS, TDS etc	7 days	SPOCAS, pH Field and ROC, CEC	28 days
Tannin/Lignin	7 days	FEIP TCLP	7 days

Containers:

	500P	250P	60P	1LA	40mL_vial	125mL A	1L	Bag
1	1		1	1	2			
2	1		1	1	2			
3	1		1	1	2			
4	1		1	1	2			
5	1		1	1	2			
6	1		1	1	2			
7	1		1	1	2			
8	1		1	1	2			
9	1		1	1	2			
10	1		1	1	2			
11	1		1	1	2			
12			1					
13					2			
14					2			
15								
16								

Sample comments:

Relinquished By	Laboratory Staff	Turn around time	Method Of Shipment	Temperature on arrival:
Terry Nham - GHD	Received By: R. TAMURA	1 DAY ☐ 2 DAY ☐ 5 DAY ☐	☐ Courier	37 °C
Date & Time: 27/11/18	Date & Time: 29/11 12:20PM	5 DAY ☑ 10 DAY ☐ Other:	☑ Hand Delivered	Report number:
Signature:	Signature:		☐ Postal	629922
			Courier Consignment # :	

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Henry Luo**

Report **629922-W**
Project name CENTRAL
Project ID 21-27234
Received Date Nov 27, 2018

Client Sample ID			**SRT_BH082**	**SRT_CBH001**	**SRT_BH048**	**SRT_BH047**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S18-No36120**	**S18-No36121**	**S18-No36122**	**S18-No36123**
Date Sampled			**Nov 26, 2018**	**Nov 26, 2018**	**Nov 26, 2018**	**Nov 26, 2018**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	0.51	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	0.51	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	1.0	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	0.3	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	1.81	< 0.1	< 0.1
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	0.14	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	0.8	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	0.4	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	1.34	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	97	89	91	90
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			SRT_BH082	SRT_CBH001	SRT_BH048	SRT_BH047
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S18-No36120	S18-No36121	S18-No36122	S18-No36123
Date Sampled			Nov 26, 2018	Nov 26, 2018	Nov 26, 2018	Nov 26, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	58	97	90	117
p-Terphenyl-d14 (surr.)	1	%	136	88	73	93
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4.4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Toxaphene	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	122	133	97	85
Tetrachloro-m-xylene (surr.)	1	%	64	56	125	82
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			SRT_BH082	SRT_CBH001	SRT_BH048	SRT_BH047
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S18-No36120	S18-No36121	S18-No36122	S18-No36123
Date Sampled			Nov 26, 2018	Nov 26, 2018	Nov 26, 2018	Nov 26, 2018
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	116	90	141	81
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	122	133	97	85
Tetrachloro-m-xylene (surr.)	1	%	64	56	125	82
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003

Client Sample ID			SRT_BH082	SRT_CBH001	SRT_BH048	SRT_BH047
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S18-No36120	S18-No36121	S18-No36122	S18-No36123
Date Sampled			Nov 26, 2018	Nov 26, 2018	Nov 26, 2018	Nov 26, 2018
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	83	94	52	101
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Chloride	1	mg/L	38	35	51	39
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nitrate (as N)	0.02	mg/L	0.36	7.8	0.10	17
Sulphate (as SO4)	5	mg/L	31	32	49	12
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	27	170
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	2.3	6.6	5.2	53
Magnesium	0.5	mg/L	3.6	4.9	2.5	6.9
Potassium	0.5	mg/L	1.1	1.6	1.6	0.9
Sodium	0.5	mg/L	25	21	36	31
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.007	0.042	0.045	0.022
Lead (filtered)	0.001	mg/L	0.002	0.003	0.005	0.002
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.002	0.012	0.011	0.005
Zinc (filtered)	0.005	mg/L	0.021	0.094	0.086	0.039

Client Sample ID			SRT_BH052	SRT_BH059	SRT_CBH017	SRT_CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S18-No36124	S18-No36125	S18-No36126	S18-No36127
Date Sampled			Nov 26, 2018	Nov 26, 2018	Nov 26, 2018	Nov 26, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	3.1	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	3.1	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	2.9	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	0.8	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	6.8	< 0.1	< 0.1
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	2.9	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	2.6	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	0.9	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	6.4	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	81	86	101	91
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	138	66	91	124
p-Terphenyl-d14 (surr.)	1	%	122	115	79	95
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4.4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001

Client Sample ID			SRT_BH052	SRT_BH059	SRT_CBH017	SRT_CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S18-No36124	S18-No36125	S18-No36126	S18-No36127
Date Sampled			Nov 26, 2018	Nov 26, 2018	Nov 26, 2018	Nov 26, 2018
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Toxaphene	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	94	90	79	93
Tetrachloro-m-xylene (surr.)	1	%	99	95	93	55
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			SRT_BH052	SRT_BH059	SRT_CBH017	SRT_CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S18-No36124	S18-No36125	S18-No36126	S18-No36127
Date Sampled			Nov 26, 2018	Nov 26, 2018	Nov 26, 2018	Nov 26, 2018
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	int	66	82	102
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PCB*	0.001	mg/L	< 0.001	0	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	94	90	79	93
Tetrachloro-m-xylene (surr.)	1	%	99	95	93	55
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	109	99	39	65
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34 (after silica gel clean-up)	0.1	mg/L	< 0.1	0.1	< 0.1	< 0.1
TRH >C34-C40 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1

Client Sample ID			SRT_BH052	SRT_BH059	SRT_CBH017	SRT_CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S18-No36124	S18-No36125	S18-No36126	S18-No36127
Date Sampled			Nov 26, 2018	Nov 26, 2018	Nov 26, 2018	Nov 26, 2018
Test/Reference	LOR	Unit				
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	0.1	mg/L	< 0.1	0.1	< 0.1	< 0.1
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28 (after silica gel clean-up)	0.1	mg/L	< 0.1	0.1	< 0.1	< 0.1
TRH C29-C36 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Chloride	1	mg/L	41	34	16	11
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Nitrate (as N)	0.02	mg/L	9.2	2.3	0.38	3.5
Sulphate (as SO4)	5	mg/L	27	13	18	45
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	73	210	84	30
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	18	58	15	2.9
Magnesium	0.5	mg/L	3.7	7.4	6.7	5.3
Potassium	0.5	mg/L	1.0	5.5	2.7	3.8
Sodium	0.5	mg/L	40	9.0	13	24
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.022	0.042	0.12	< 0.001
Lead (filtered)	0.001	mg/L	0.003	0.003	0.006	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.006	0.008	0.016	0.009
Zinc (filtered)	0.005	mg/L	0.085	0.077	0.21	0.020

Client Sample ID			SRT_BH063	QA01	RB01	TRIP BLANK
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S18-No36128	S18-No36129	S18-No36130	S18-No36131
Date Sampled			Nov 26, 2018	Nov 26, 2018	Nov 26, 2018	Nov 26, 2018
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	-	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	-	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	-	< 0.02
TRH >C10-C16	0.05	mg/L	0.73	< 0.05	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	0.73	< 0.05	-	-
TRH >C16-C34	0.1	mg/L	1.1	< 0.1	-	-
TRH >C34-C40	0.1	mg/L	0.2	< 0.1	-	-
TRH >C10-C40 (total)*	0.1	mg/L	2.03	< 0.1	-	-
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	-	< 0.02
TRH C10-C14	0.05	mg/L	0.62	< 0.05	-	-
TRH C15-C28	0.1	mg/L	1.0	< 0.1	-	-
TRH C29-C36	0.1	mg/L	0.3	< 0.1	-	-
TRH C10-36 (Total)	0.1	mg/L	1.92	< 0.1	-	-

Client Sample ID			SRT_BH063	QA01	RB01	TRIP BLANK
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S18-No36128**	**S18-No36129**	**S18-No36130**	**S18-No36131**
Date Sampled			**Nov 26, 2018**	**Nov 26, 2018**	**Nov 26, 2018**	**Nov 26, 2018**
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	-	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	-	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	-	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	-	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	-	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	-	< 0.003
4-Bromofluorobenzene (surr.)	1	%	94	100	-	88
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	-	-
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	-	-
Anthracene	0.001	mg/L	< 0.001	< 0.001	-	-
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	-	-
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	-	-
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	-	-
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	-	-
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	-	-
Chrysene	0.001	mg/L	< 0.001	< 0.001	-	-
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	-	-
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	-	-
Fluorene	0.001	mg/L	< 0.001	< 0.001	-	-
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	-	-
Naphthalene	0.001	mg/L	< 0.001	< 0.001	-	-
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	-	-
Pyrene	0.001	mg/L	< 0.001	< 0.001	-	-
Total PAH*	0.001	mg/L	< 0.001	< 0.001	-	-
2-Fluorobiphenyl (surr.)	1	%	143	60	-	-
p-Terphenyl-d14 (surr.)	1	%	52	50	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	-	-	-
4.4'-DDD	0.0001	mg/L	< 0.0001	-	-	-
4.4'-DDE	0.0001	mg/L	< 0.0001	-	-	-
4.4'-DDT	0.0001	mg/L	< 0.0001	-	-	-
a-BHC	0.0001	mg/L	< 0.0001	-	-	-
Aldrin	0.0001	mg/L	< 0.0001	-	-	-
b-BHC	0.0001	mg/L	< 0.0001	-	-	-
d-BHC	0.0001	mg/L	< 0.0001	-	-	-
Dieldrin	0.0001	mg/L	< 0.0001	-	-	-
Endosulfan I	0.0001	mg/L	< 0.0001	-	-	-
Endosulfan II	0.0001	mg/L	< 0.0001	-	-	-
Endosulfan sulphate	0.0001	mg/L	< 0.0001	-	-	-
Endrin	0.0001	mg/L	< 0.0001	-	-	-
Endrin aldehyde	0.0001	mg/L	< 0.0001	-	-	-
Endrin ketone	0.0001	mg/L	< 0.0001	-	-	-
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	-	-	-
Heptachlor	0.0001	mg/L	< 0.0001	-	-	-
Heptachlor epoxide	0.0001	mg/L	< 0.0001	-	-	-
Hexachlorobenzene	0.0001	mg/L	< 0.0001	-	-	-
Methoxychlor	0.0001	mg/L	< 0.0001	-	-	-
Toxaphene	0.01	mg/L	< 0.01	-	-	-

Client Sample ID			SRT_BH063	QA01	RB01	TRIP BLANK
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S18-No36128**	**S18-No36129**	**S18-No36130**	**S18-No36131**
Date Sampled			**Nov 26, 2018**	**Nov 26, 2018**	**Nov 26, 2018**	**Nov 26, 2018**
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	-	-	-
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	-	-	-
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	-	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	-	-	-
Dibutylchlorendate (surr.)	1	%	105	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	63	-	-	-
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	-	-	-
Bolstar	0.002	mg/L	< 0.002	-	-	-
Chlorfenvinphos	0.002	mg/L	< 0.002	-	-	-
Chlorpyrifos	0.02	mg/L	< 0.02	-	-	-
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	-	-	-
Coumaphos	0.02	mg/L	< 0.02	-	-	-
Demeton-S	0.02	mg/L	< 0.02	-	-	-
Demeton-O	0.002	mg/L	< 0.002	-	-	-
Diazinon	0.002	mg/L	< 0.002	-	-	-
Dichlorvos	0.002	mg/L	< 0.002	-	-	-
Dimethoate	0.002	mg/L	< 0.002	-	-	-
Disulfoton	0.002	mg/L	< 0.002	-	-	-
EPN	0.002	mg/L	< 0.002	-	-	-
Ethion	0.002	mg/L	< 0.002	-	-	-
Ethoprop	0.002	mg/L	< 0.002	-	-	-
Ethyl parathion	0.002	mg/L	< 0.002	-	-	-
Fenitrothion	0.002	mg/L	< 0.002	-	-	-
Fensulfothion	0.002	mg/L	< 0.002	-	-	-
Fenthion	0.002	mg/L	< 0.002	-	-	-
Malathion	0.002	mg/L	< 0.002	-	-	-
Merphos	0.002	mg/L	< 0.002	-	-	-
Methyl parathion	0.002	mg/L	< 0.002	-	-	-
Mevinphos	0.002	mg/L	< 0.002	-	-	-
Monocrotophos	0.002	mg/L	< 0.002	-	-	-
Naled	0.002	mg/L	< 0.002	-	-	-
Omethoate	0.002	mg/L	< 0.002	-	-	-
Phorate	0.002	mg/L	< 0.002	-	-	-
Pirimiphos-methyl	0.02	mg/L	< 0.02	-	-	-
Pyrazophos	0.002	mg/L	< 0.002	-	-	-
Ronnel	0.002	mg/L	< 0.002	-	-	-
Terbufos	0.002	mg/L	< 0.002	-	-	-
Tetrachlorvinphos	0.002	mg/L	< 0.002	-	-	-
Tokuthion	0.002	mg/L	< 0.002	-	-	-
Trichloronate	0.002	mg/L	< 0.002	-	-	-
Triphenylphosphate (surr.)	1	%	119	-	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	-	-	-
Aroclor-1221	0.001	mg/L	< 0.001	-	-	-
Aroclor-1232	0.001	mg/L	< 0.001	-	-	-
Aroclor-1242	0.001	mg/L	< 0.001	-	-	-
Aroclor-1248	0.001	mg/L	< 0.001	-	-	-
Aroclor-1254	0.001	mg/L	< 0.001	-	-	-

Client Sample ID			SRT_BH063	QA01	RB01	TRIP BLANK
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S18-No36128	S18-No36129	S18-No36130	S18-No36131
Date Sampled			Nov 26, 2018	Nov 26, 2018	Nov 26, 2018	Nov 26, 2018
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1260	0.001	mg/L	< 0.001	-	-	-
Total PCB*	0.001	mg/L	< 0.001	-	-	-
Dibutylchlorendate (surr.)	1	%	105	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	63	-	-	-
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	-	-	-
2.4-Dichlorophenol	0.003	mg/L	< 0.003	-	-	-
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	-	-	-
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	-	-	-
2.6-Dichlorophenol	0.003	mg/L	< 0.003	-	-	-
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	-	-	-
Pentachlorophenol	0.01	mg/L	< 0.01	-	-	-
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	-	-	-
Total Halogenated Phenol*	0.01	mg/L	< 0.01	-	-	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	-	-	-
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	-	-	-
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	-	-	-
2-Nitrophenol	0.01	mg/L	< 0.01	-	-	-
2.4-Dimethylphenol	0.003	mg/L	< 0.003	-	-	-
2.4-Dinitrophenol	0.03	mg/L	< 0.03	-	-	-
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	-	-	-
4-Nitrophenol	0.03	mg/L	< 0.03	-	-	-
Dinoseb	0.1	mg/L	< 0.1	-	-	-
Phenol	0.003	mg/L	< 0.003	-	-	-
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	-	-	-
Phenol-d6 (surr.)	1	%	76	-	-	-
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	< 0.05	-	-	-
TRH >C16-C34 (after silica gel clean-up)	0.1	mg/L	< 0.1	-	-	-
TRH >C34-C40 (after silica gel clean-up)	0.1	mg/L	< 0.1	-	-	-
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	0.1	mg/L	< 0.1	-	-	-
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	< 0.05	-	-	-
TRH C15-C28 (after silica gel clean-up)	0.1	mg/L	< 0.1	-	-	-
TRH C29-C36 (after silica gel clean-up)	0.1	mg/L	< 0.1	-	-	-
Ammonia (as N)	0.01	mg/L	< 0.01	-	-	-
Chloride	1	mg/L	68	-	-	-
Cyanide (total)	0.005	mg/L	< 0.005	-	-	-
Nitrate (as N)	0.02	mg/L	0.10	-	-	-
Sulphate (as SO4)	5	mg/L	52	-	-	-
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	320	-	-	-
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	-	-	-
Alkali Metals						
Calcium	0.5	mg/L	48	-	-	-
Magnesium	0.5	mg/L	31	-	-	-
Potassium	0.5	mg/L	5.0	-	-	-
Sodium	0.5	mg/L	63	-	-	-

Client Sample ID			SRT_BH063	QA01	RB01	TRIP BLANK
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S18-No36128**	**S18-No36129**	**S18-No36130**	**S18-No36131**
Date Sampled			**Nov 26, 2018**	**Nov 26, 2018**	**Nov 26, 2018**	**Nov 26, 2018**
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	0.001	mg/L	-	-	< 0.001	-
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	-	-
Cadmium	0.0002	mg/L	-	-	< 0.0002	-
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	-	-
Chromium	0.001	mg/L	-	-	< 0.001	-
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	-	-
Copper	0.001	mg/L	-	-	< 0.001	-
Copper (filtered)	0.001	mg/L	0.027	0.073	-	-
Lead	0.001	mg/L	-	-	< 0.001	-
Lead (filtered)	0.001	mg/L	0.003	0.013	-	-
Mercury	0.0001	mg/L	-	-	< 0.0001	-
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Nickel	0.001	mg/L	-	-	< 0.001	-
Nickel (filtered)	0.001	mg/L	0.014	0.010	-	-
Zinc	0.005	mg/L	-	-	< 0.005	-
Zinc (filtered)	0.005	mg/L	0.067	0.17	-	-

Client Sample ID			[R20]TRIP SPIKE
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**S18-No36132**
Date Sampled			**Nov 26, 2018**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.01	mg/L	100
TRH C6-C10	0.02	mg/L	72
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	75
BTEX			
Benzene	0.001	mg/L	94
Toluene	0.001	mg/L	88
Ethylbenzene	0.001	mg/L	91
m&p-Xylenes	0.002	mg/L	86
o-Xylene	0.001	mg/L	91
Xylenes - Total	0.003	mg/L	87
4-Bromofluorobenzene (surr.)	1	%	111

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

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 - 2013 NEPM Fractions	Melbourne	Nov 28, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Melbourne	Nov 28, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Nov 28, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Nov 28, 2018	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Eurofins | mgt Suite B7A (filtered metals)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Nov 28, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Nov 30, 2018	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Melbourne	Nov 30, 2018	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Nov 30, 2018	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8 filtered	Melbourne	Nov 28, 2018	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins | mgt Suite B15			
Organochlorine Pesticides	Melbourne	Nov 30, 2018	7 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Melbourne	Nov 30, 2018	7 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Melbourne	Nov 30, 2018	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
TRH - 2013 NEPM Fractions (after silica gel clean-up)	Melbourne	Nov 28, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
TRH - 1999 NEPM Fractions (after silica gel clean-up)	Melbourne	Nov 28, 2018	7 Day
- Method: TRH C6-C36 (Silica Gel Cleanup) - MGT 100A			
Eurofins | mgt Suite B11			
Ammonia (as N)	Melbourne	Nov 28, 2018	28 Day
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Chloride	Melbourne	Nov 28, 2018	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Nitrate (as N)	Melbourne	Nov 28, 2018	28 Day
- Method: APHA 4500-NO3 Nitrate Nitrogen by FIA			
Sulphate (as SO4)	Melbourne	Nov 28, 2018	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Nov 28, 2018	14 Day
- Method: APHA 2320 Alkalinity by Titration			
Alkali Metals	Melbourne	Nov 28, 2018	180 Day
- Method: LTM-MET-3010 Alkali Metals S Si and P by ICP-AES			
Cyanide (total)	Melbourne	Nov 28, 2018	14 Day
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Metals M8	Melbourne	Nov 28, 2018	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

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Project Name: CENTRAL
Project ID: 21-27234

Order No.:
Report #: 629922
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Nov 27, 2018 12:20 PM
Due: Dec 4, 2018
Priority: 5 Day
Contact Name: Henry Luo

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Cyanide (total)	Metals M8	Eurofins | mgt Suite B15	Eurofins | mgt Suite B11	TRH (after Silica Gel cleanup)	Eurofins | mgt Suite B7 (filtered metals)	Eurofins | mgt Suite B7A (filtered metals)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217													
Brisbane Laboratory - NATA Site # 20794													
Perth Laboratory - NATA Site # 23736													
External Laboratory													
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**								
1	SRT_BH082	Nov 26, 2018		Water	S18-No36120	X		X	X	X		X	
2	SRT_CBH001	Nov 26, 2018		Water	S18-No36121	X		X	X	X		X	
3	SRT_BH048	Nov 26, 2018		Water	S18-No36122	X		X	X	X		X	
4	SRT_BH047	Nov 26, 2018		Water	S18-No36123	X		X	X	X		X	
5	SRT_BH052	Nov 26, 2018		Water	S18-No36124	X		X	X	X		X	
6	SRT_BH059	Nov 26, 2018		Water	S18-No36125	X		X	X	X		X	
7	SRT_CBH017	Nov 26, 2018		Water	S18-No36126	X		X	X	X		X	
8	SRT_CBH015	Nov 26, 2018		Water	S18-No36127	X		X	X	X		X	
9	SRT_BH063	Nov 26, 2018		Water	S18-No36128	X		X	X	X		X	

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Project Name: CENTRAL
Project ID: 21-27234

Order No.:
Report #: 629922
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Nov 27, 2018 12:20 PM
Due: Dec 4, 2018
Priority: 5 Day
Contact Name: Henry Luo

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Cyanide (total)	Metals M8	Eurofins | mgt Suite B15	Eurofins | mgt Suite B11	TRH (after Silica Gel cleanup)	Eurofins | mgt Suite B7 (filtered metals)	Eurofins | mgt Suite B7A (filtered metals)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217													
Brisbane Laboratory - NATA Site # 20794													
Perth Laboratory - NATA Site # 23736													
10	QA01	Nov 26, 2018		Water	S18-No36129						X		
11	RB01	Nov 26, 2018		Water	S18-No36130		X						
12	TRIP BLANK	Nov 26, 2018		Water	S18-No36131								X
13	TRIP SPIKE	Nov 26, 2018		Water	S18-No36132								X
Test Counts						9	1	9	9	9	1	9	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil 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. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
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							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.001			0.001	Pass	
4.4'-DDD	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDE	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDT	mg/L	< 0.0001			0.0001	Pass	
a-BHC	mg/L	< 0.0001			0.0001	Pass	
Aldrin	mg/L	< 0.0001			0.0001	Pass	
b-BHC	mg/L	< 0.0001			0.0001	Pass	
d-BHC	mg/L	< 0.0001			0.0001	Pass	
Dieldrin	mg/L	< 0.0001			0.0001	Pass	
Endosulfan I	mg/L	< 0.0001			0.0001	Pass	
Endosulfan II	mg/L	< 0.0001			0.0001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/L	< 0.0001			0.0001	Pass	
Endrin	mg/L	< 0.0001			0.0001	Pass	
Endrin aldehyde	mg/L	< 0.0001			0.0001	Pass	
Endrin ketone	mg/L	< 0.0001			0.0001	Pass	
g-BHC (Lindane)	mg/L	< 0.0001			0.0001	Pass	
Heptachlor	mg/L	< 0.0001			0.0001	Pass	
Heptachlor epoxide	mg/L	< 0.0001			0.0001	Pass	
Hexachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
Methoxychlor	mg/L	< 0.0001			0.0001	Pass	
Toxaphene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/L	< 0.002			0.002	Pass	
Bolstar	mg/L	< 0.002			0.002	Pass	
Chlorfenvinphos	mg/L	< 0.002			0.002	Pass	
Chlorpyrifos	mg/L	< 0.02			0.02	Pass	
Chlorpyrifos-methyl	mg/L	< 0.002			0.002	Pass	
Coumaphos	mg/L	< 0.02			0.02	Pass	
Demeton-S	mg/L	< 0.02			0.02	Pass	
Demeton-O	mg/L	< 0.002			0.002	Pass	
Diazinon	mg/L	< 0.002			0.002	Pass	
Dichlorvos	mg/L	< 0.002			0.002	Pass	
Dimethoate	mg/L	< 0.002			0.002	Pass	
Disulfoton	mg/L	< 0.002			0.002	Pass	
EPN	mg/L	< 0.002			0.002	Pass	
Ethion	mg/L	< 0.002			0.002	Pass	
Ethoprop	mg/L	< 0.002			0.002	Pass	
Ethyl parathion	mg/L	< 0.002			0.002	Pass	
Fenitrothion	mg/L	< 0.002			0.002	Pass	
Fensulfothion	mg/L	< 0.002			0.002	Pass	
Fenthion	mg/L	< 0.002			0.002	Pass	
Malathion	mg/L	< 0.002			0.002	Pass	
Merphos	mg/L	< 0.002			0.002	Pass	
Methyl parathion	mg/L	< 0.002			0.002	Pass	
Mevinphos	mg/L	< 0.002			0.002	Pass	
Monocrotophos	mg/L	< 0.002			0.002	Pass	
Naled	mg/L	< 0.002			0.002	Pass	
Omethoate	mg/L	< 0.002			0.002	Pass	
Phorate	mg/L	< 0.002			0.002	Pass	
Pirimiphos-methyl	mg/L	< 0.02			0.02	Pass	
Pyrazophos	mg/L	< 0.002			0.002	Pass	
Ronnel	mg/L	< 0.002			0.002	Pass	
Terbufos	mg/L	< 0.002			0.002	Pass	
Tetrachlorvinphos	mg/L	< 0.002			0.002	Pass	
Tokuthion	mg/L	< 0.002			0.002	Pass	
Trichloronate	mg/L	< 0.002			0.002	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/L	< 0.001			0.001	Pass	
Aroclor-1221	mg/L	< 0.001			0.001	Pass	
Aroclor-1232	mg/L	< 0.001			0.001	Pass	
Aroclor-1242	mg/L	< 0.001			0.001	Pass	
Aroclor-1248	mg/L	< 0.001			0.001	Pass	
Aroclor-1254	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1260	mg/L	< 0.001			0.001	Pass	
Total PCB*	mg/L	< 0.001			0.001	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4.5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.4.6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/L	< 0.1			0.1	Pass	
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2.4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Method Blank							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
Method Blank							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	mg/L	< 0.05			0.05	Pass	
TRH C15-C28 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
TRH C29-C36 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chloride	mg/L	< 1			1	Pass	
Cyanide (total)	mg/L	< 0.005			0.005	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Sulphate (as SO4)	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO3)	mg/L	< 10			10	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	109			70-130	Pass	
TRH C6-C10	%	93			70-130	Pass	
TRH >C10-C16	%	73			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	94			70-130	Pass	
TRH C10-C14	%	72			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	97			70-130	Pass	
Toluene	%	93			70-130	Pass	
Ethylbenzene	%	95			70-130	Pass	
m&p-Xylenes	%	95			70-130	Pass	
Xylenes - Total	%	94			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	85			70-130	Pass	
Acenaphthylene	%	108			70-130	Pass	
Anthracene	%	86			70-130	Pass	
Benz(a)anthracene	%	77			70-130	Pass	
Benzo(a)pyrene	%	110			70-130	Pass	
Benzo(b&j)fluoranthene	%	98			70-130	Pass	
Benzo(g.h.i)perylene	%	84			70-130	Pass	
Benzo(k)fluoranthene	%	87			70-130	Pass	
Chrysene	%	73			70-130	Pass	
Dibenz(a.h)anthracene	%	76			70-130	Pass	
Fluoranthene	%	87			70-130	Pass	
Fluorene	%	82			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	74			70-130	Pass	
Naphthalene	%	89			70-130	Pass	
Phenanthrene	%	105			70-130	Pass	
Pyrene	%	88			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	84			70-130	Pass	
4.4'-DDD	%	123			70-130	Pass	
4.4'-DDE	%	114			70-130	Pass	
4.4'-DDT	%	109			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
a-BHC	%	103			70-130	Pass	
Aldrin	%	115			70-130	Pass	
b-BHC	%	102			70-130	Pass	
d-BHC	%	103			70-130	Pass	
Dieldrin	%	114			70-130	Pass	
Endosulfan I	%	99			70-130	Pass	
Endosulfan II	%	95			70-130	Pass	
Endosulfan sulphate	%	98			70-130	Pass	
Endrin	%	97			70-130	Pass	
Endrin aldehyde	%	77			70-130	Pass	
Endrin ketone	%	79			70-130	Pass	
g-BHC (Lindane)	%	110			70-130	Pass	
Heptachlor	%	108			70-130	Pass	
Heptachlor epoxide	%	101			70-130	Pass	
Hexachlorobenzene	%	98			70-130	Pass	
Methoxychlor	%	103			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	113			70-130	Pass	
Dimethoate	%	86			70-130	Pass	
Ethion	%	110			70-130	Pass	
Fenitrothion	%	84			70-130	Pass	
Methyl parathion	%	78			70-130	Pass	
Mevinphos	%	86			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	78			30-130	Pass	
2.4-Dichlorophenol	%	64			30-130	Pass	
2.4.5-Trichlorophenol	%	51			30-130	Pass	
2.4.6-Trichlorophenol	%	71			30-130	Pass	
2.6-Dichlorophenol	%	45			30-130	Pass	
4-Chloro-3-methylphenol	%	86			30-130	Pass	
Pentachlorophenol	%	76			30-130	Pass	
Tetrachlorophenols - Total	%	47			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	44			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	39			30-130	Pass	
2-Methylphenol (o-Cresol)	%	90			30-130	Pass	
2-Nitrophenol	%	66			30-130	Pass	
2.4-Dimethylphenol	%	62			30-130	Pass	
2.4-Dinitrophenol	%	73			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	96			30-130	Pass	
4-Nitrophenol	%	78			30-130	Pass	
Dinoseb	%	40			30-130	Pass	
Phenol	%	52			30-130	Pass	
LCS - % Recovery							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	%	113			70-130	Pass	
LCS - % Recovery							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	%	107			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	97			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chloride	%	116			70-130	Pass	
Cyanide (total)	%	120			70-130	Pass	
Nitrate (as N)	%	98			70-130	Pass	
Sulphate (as SO4)	%	110			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	%	90			70-130	Pass	
Carbonate Alkalinity (as CaCO3)	%	88			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	95			70-130	Pass	
Magnesium	%	93			70-130	Pass	
Potassium	%	90			70-130	Pass	
Sodium	%	94			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	94			80-120	Pass	
Arsenic (filtered)	%	94			80-120	Pass	
Cadmium	%	95			80-120	Pass	
Cadmium (filtered)	%	95			80-120	Pass	
Chromium	%	95			80-120	Pass	
Chromium (filtered)	%	95			80-120	Pass	
Copper	%	95			80-120	Pass	
Copper (filtered)	%	95			80-120	Pass	
Lead	%	93			80-120	Pass	
Lead (filtered)	%	93			80-120	Pass	
Mercury	%	83			75-125	Pass	
Mercury (filtered)	%	83			70-130	Pass	
Nickel	%	95			80-120	Pass	
Nickel (filtered)	%	95			80-120	Pass	
Zinc	%	96			80-120	Pass	
Zinc (filtered)	%	96			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M18-No35607	NCP	%	113			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	M18-No35607	NCP	%	106			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S18-No31437	NCP	%	89			70-130	Pass	
Acenaphthylene	S18-No31437	NCP	%	73			70-130	Pass	
Anthracene	S18-No31437	NCP	%	76			70-130	Pass	
Benz(a)anthracene	S18-No31437	NCP	%	78			70-130	Pass	
Benzo(a)pyrene	S18-No31437	NCP	%	110			70-130	Pass	
Benzo(b&j)fluoranthene	S18-No31437	NCP	%	99			70-130	Pass	
Benzo(g.h.i)perylene	S18-No31437	NCP	%	90			70-130	Pass	
Benzo(k)fluoranthene	S18-No31437	NCP	%	80			70-130	Pass	
Chrysene	S18-No31437	NCP	%	72			70-130	Pass	
Dibenz(a.h)anthracene	S18-No31437	NCP	%	72			70-130	Pass	
Fluoranthene	S18-No31437	NCP	%	78			70-130	Pass	
Fluorene	S18-No31437	NCP	%	84			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S18-No31437	NCP	%	78			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Naphthalene	S18-No31437	NCP	%	78			70-130	Pass	
Phenanthrene	S18-No31437	NCP	%	98			70-130	Pass	
Pyrene	S18-No31437	NCP	%	78			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	M18-No35759	NCP	%	75			70-130	Pass	
Dimethoate	M18-No35759	NCP	%	92			70-130	Pass	
Ethion	M18-No33691	NCP	%	92			70-130	Pass	
Fenitrothion	M18-No35759	NCP	%	79			70-130	Pass	
Methyl parathion	M18-No35759	NCP	%	75			70-130	Pass	
Mevinphos	M18-No35759	NCP	%	85			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	P18-No29638	NCP	%	76			30-130	Pass	
2.4-Dichlorophenol	P18-No29638	NCP	%	50			30-130	Pass	
2.4.5-Trichlorophenol	P18-No29638	NCP	%	65			30-130	Pass	
2.4.6-Trichlorophenol	P18-No29638	NCP	%	70			30-130	Pass	
4-Chloro-3-methylphenol	P18-No29638	NCP	%	98			30-130	Pass	
Tetrachlorophenols - Total	P18-No29638	NCP	%	32			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Methyl-4.6-dinitrophenol	P18-No29638	NCP	%	32			30-130	Pass	
2-Methylphenol (o-Cresol)	P18-No29638	NCP	%	90			30-130	Pass	
2.4-Dimethylphenol	P18-No29638	NCP	%	111			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	P18-No29638	NCP	%	100			30-130	Pass	
Dinoseb	P18-No29638	NCP	%	34			30-130	Pass	
Phenol	P18-No29638	NCP	%	73			30-130	Pass	
Spike - % Recovery									
TRH - 2013 NEPM Fractions (after silica gel clean-up)				Result 1					
TRH >C10-C16 (after silica gel clean-up)	M18-No41213	NCP	%	91			70-130	Pass	
Spike - % Recovery									
TRH - 1999 NEPM Fractions (after silica gel clean-up)				Result 1					
TRH C10-C14 (after silica gel clean-up)	M18-No41213	NCP	%	89			70-130	Pass	
Spike - % Recovery									
				Result 1					
Nitrate (as N)	M18-No34786	NCP	%	99			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S18-No36122	CP	%	76			70-130	Pass	
TRH C6-C10	S18-No36122	CP	%	85			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S18-No36122	CP	%	88			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S18-No36122	CP	%	87			70-130	Pass	
Toluene	S18-No36122	CP	%	81			70-130	Pass	
Ethylbenzene	S18-No36122	CP	%	83			70-130	Pass	
m&p-Xylenes	S18-No36122	CP	%	83			70-130	Pass	
o-Xylene	S18-No36122	CP	%	82			70-130	Pass	
Xylenes - Total	S18-No36122	CP	%	82			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2.6-Dichlorophenol	P18-No38525	NCP	%	70			30-130	Pass	
Pentachlorophenol	P18-No38525	NCP	%	73			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	P18-No38525	NCP	%	78			30-130	Pass	
2-Nitrophenol	P18-No38525	NCP	%	54			30-130	Pass	
2.4-Dinitrophenol	P18-No38525	NCP	%	129			30-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	S18-No36123	CP	%	121			70-130	Pass	
4.4'-DDE	S18-No36123	CP	%	125			70-130	Pass	
4.4'-DDT	S18-No36123	CP	%	87			70-130	Pass	
a-BHC	S18-No36123	CP	%	89			70-130	Pass	
Aldrin	S18-No36123	CP	%	106			70-130	Pass	
b-BHC	S18-No36123	CP	%	74			70-130	Pass	
d-BHC	S18-No36123	CP	%	95			70-130	Pass	
Dieldrin	S18-No36123	CP	%	121			70-130	Pass	
Endosulfan II	S18-No36123	CP	%	100			70-130	Pass	
Endosulfan sulphate	S18-No36123	CP	%	70			70-130	Pass	
Endrin	S18-No36123	CP	%	94			70-130	Pass	
Endrin aldehyde	S18-No36123	CP	%	80			70-130	Pass	
Endrin ketone	S18-No36123	CP	%	117			70-130	Pass	
g-BHC (Lindane)	S18-No36123	CP	%	96			70-130	Pass	
Heptachlor	S18-No36123	CP	%	80			70-130	Pass	
Hexachlorobenzene	S18-No36123	CP	%	103			70-130	Pass	
Methoxychlor	S18-No36123	CP	%	90			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	S18-No36124	CP	%	97			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S18-No36125	CP	%	92			70-130	Pass	
Cadmium (filtered)	S18-No36125	CP	%	93			70-130	Pass	
Chromium (filtered)	S18-No36125	CP	%	94			70-130	Pass	
Copper (filtered)	S18-No36125	CP	%	90			70-130	Pass	
Lead (filtered)	S18-No36125	CP	%	99			70-130	Pass	
Mercury (filtered)	S18-No36125	CP	%	91			70-130	Pass	
Nickel (filtered)	S18-No36125	CP	%	89			70-130	Pass	
Zinc (filtered)	S18-No36125	CP	%	91			70-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
4-Nitrophenol	M18-No39402	NCP	%	62			30-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	S18-No36126	CP	%	108			70-130	Pass	
Magnesium	S18-No36126	CP	%	108			70-130	Pass	
Potassium	S18-No36126	CP	%	102			70-130	Pass	
Sodium	S18-No36126	CP	%	107			70-130	Pass	
Spike - % Recovery									
				Result 1					
Cyanide (total)	S18-No36128	CP	%	121			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M18-No41182	NCP	%	93			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cadmium	M18-No41182	NCP	%	96			75-125	Pass	
Chromium	M18-No41182	NCP	%	97			75-125	Pass	
Copper	M18-No41182	NCP	%	94			75-125	Pass	
Lead	M18-No41182	NCP	%	101			75-125	Pass	
Mercury	M18-No41182	NCP	%	99			70-130	Pass	
Nickel	M18-No41182	NCP	%	95			75-125	Pass	
Zinc	M18-No41182	NCP	%	98			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S18-No31438	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	S18-No31438	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	S18-No31438	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S18-No31438	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S18-No31438	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S18-No31438	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
TRH - 2013 NEPM Fractions (after silica gel clean-up)				Result 1	Result 2	RPD			
TRH >C10-C16 (after silica gel clean-up)	M18-No41212	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34 (after silica gel clean-up)	M18-No41212	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40 (after silica gel clean-up)	M18-No41212	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
TRH - 1999 NEPM Fractions (after silica gel clean-up)				Result 1	Result 2	RPD			
TRH C10-C14 (after silica gel clean-up)	M18-No41212	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28 (after silica gel clean-up)	M18-No41212	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36 (after silica gel clean-up)	M18-No41212	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	B18-No35389	NCP	mg/L	210	210	<1	30%	Pass	
Sulphate (as SO4)	B18-No35389	NCP	mg/L	97	99	2.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S18-No36121	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S18-No36121	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S18-No36121	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S18-No36121	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S18-No36121	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S18-No36121	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S18-No36121	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S18-No36121	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	S18-No36121	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
TRH - 1999 NEPM Fractions (after silica gel clean-up)				Result 1	Result 2	RPD			
TRH C10-C36 (Total) (after silica gel clean-up)	M18-No41212	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S18-No36122	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	S18-No36122	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	S18-No36122	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	S18-No36122	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	S18-No36122	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	S18-No36122	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	S18-No36122	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	S18-No36122	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	S18-No36122	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	S18-No36122	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	S18-No36122	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	S18-No36122	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S18-No36122	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	S18-No36122	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	S18-No36122	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	S18-No36122	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S18-No36122	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4.4'-DDD	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDE	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDT	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
a-BHC	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Aldrin	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
b-BHC	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
d-BHC	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Dieldrin	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan I	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan II	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan sulphate	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin aldehyde	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin ketone	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
g-BHC (Lindane)	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor epoxide	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Hexachlorobenzene	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Methoxychlor	S18-No36122	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Bolstar	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorfenvinphos	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorpyrifos	S18-No36122	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Chlorpyrifos-methyl	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Coumaphos	S18-No36122	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-S	S18-No36122	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-O	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Diazinon	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dichlorvos	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dimethoate	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Disulfoton	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
EPN	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethion	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Ethoprop	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethyl parathion	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenitrothion	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fensulfothion	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenthion	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Malathion	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Merphos	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methyl parathion	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Mevinphos	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Monocrotophos	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Naled	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Omethoate	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Phorate	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Pirimiphos-methyl	S18-No36122	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Pyrazophos	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ronnel	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Terbufos	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tetrachlorvinphos	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tokuthion	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Trichloronate	S18-No36122	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S18-No36122	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dichlorophenol	S18-No36122	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4.5-Trichlorophenol	S18-No36122	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	S18-No36122	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	S18-No36122	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
4-Chloro-3-methylphenol	S18-No36122	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Pentachlorophenol	S18-No36122	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Tetrachlorophenols - Total	S18-No36122	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S18-No36122	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S18-No36122	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S18-No36122	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Nitrophenol	S18-No36122	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dimethylphenol	S18-No36122	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	S18-No36122	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S18-No36122	CP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
4-Nitrophenol	S18-No36122	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Dinoseb	S18-No36122	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Phenol	S18-No36122	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	S18-No36124	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Nitrate (as N)	S18-No36124	CP	mg/L	9.2	8.8	4.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S18-No36125	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	S18-No36125	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S18-No36125	CP	mg/L	0.001	0.001	2.0	30%	Pass	
Copper (filtered)	S18-No36125	CP	mg/L	0.042	0.041	2.0	30%	Pass	
Lead (filtered)	S18-No36125	CP	mg/L	0.003	0.003	2.0	30%	Pass	
Mercury (filtered)	S18-No36125	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Nickel (filtered)	S18-No36125	CP	mg/L	0.008	0.008	5.0	30%	Pass	
Zinc (filtered)	S18-No36125	CP	mg/L	0.077	0.075	2.0	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	S18-No36126	CP	mg/L	15	15	2.0	30%	Pass	
Magnesium	S18-No36126	CP	mg/L	6.7	6.9	2.0	30%	Pass	
Potassium	S18-No36126	CP	mg/L	2.7	2.7	2.0	30%	Pass	
Sodium	S18-No36126	CP	mg/L	13	14	2.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Cyanide (total)	S18-No36128	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	S18-No36128	CP	mg/L	320	300	7.0	30%	Pass	
Carbonate Alkalinity (as CaCO3)	S18-No36128	CP	mg/L	< 10	< 10	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M18-No41182	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	M18-No41182	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M18-No41182	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	M18-No41182	NCP	mg/L	0.002	0.001	41	30%	Fail	Q15
Lead	M18-No41182	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	M18-No41182	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	M18-No41182	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc	M18-No41182	NCP	mg/L	0.019	0.022	15	30%	Pass	

Comments

Eurofins | mgt accreditation number 1261, corporate site 1254 is currently in progress of a controlled transition to a new custom built location at 6 Monterey Road, Dandenong South, Victoria 3175. All results on this report denoted as being performed by Eurofins | mgt 2-5 Kingston Town Close, Oakleigh Victoria 3166 corporate site 1254, will have been performed on either Oakleigh or new Dandenong South site.

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.
R20	This sample is a Trip Spike and therefore all results are reported as a percentage

Authorised By

Nibha Vaidya	Analytical Services Manager
Joseph Edouard	Senior Analyst-Organic (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Julie Kay	Senior Analyst-Inorganic (VIC)
Chris Bennett	Senior Analyst-Metal (VIC)



Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

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

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eurofins | mgt

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CHAIN OF CUSTODY RECORD

Page 1 of 1

CLIENT DETAILS

Company Name : GHD Pty Ltd, Sydney
Office Address : Level 15, 133 Castlereagh Street, Sydney NSW 2000
Contact Name : Terry Nham
Project Manager : Henry Luo
Email for results : terry.nham@ghd.com henry.luo@ghd.com
Purchase Order :
PROJECT Number : 21-27334
PROJECT Name : Central
COC Number :
Eurofins | mgt quote ID : GHD Rates 2018
Data output format: ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	TRH, BTEX, PAH, 8 Metals, Phenols (Suite B7A)	OCP, OPP, PCB (Suite B15)	TRH (with Silica Gel Cleanup)	Cyanide	Ammonia	Major Anions and Cations	TRH C6-C10 / BTEX	8 Metals	TRH, BTEX, PAH, 8 Metals (B7)	Ferrous Iron	Manganese
1	SRT_BH063	17/12/18	Water	X	X	X	X	X	X				X	X
2	SRT_BH039			X	X	X	X	X	X				X	X
3	SRT_CBH015			X	X	X	X	X	X				X	X
4	SRT_CBH017			X	X	X	X	X	X				X	X
5	SRT_BH052	18/12/18		X	X	X	X	X	X				X	X
6	SRT_BH047	18/12/18		X	X	X	X	X	X				X	X
7	QA01	17/12/18										X		
8	QA02			Please email to ALS with attached COC										
9	RB01													
10	Trip Blank									X	X			
11	Trip Spike									X				
12														
13														
14														
15														
16														

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers

500P	250P	60P	1LA	40mL vial	200mL A	Jar	Bag
1		4		2	2		
1		4		2	2		
1		4		2	2		
1		4		2	2		
1		4		2	2		
1		4		2	2		
1		4		2	2		
1		4		2	2		
1		4		2	2		
		1					
		1					

Sample comments:

Relinquished By: Terry Nham - GHD
Date & Time : 18/12/2018
Signature:

Laboratory Staff
Received By: Vong
Date & Time : 18/12/18
Signature:

Turn around time
1 DAY ☐ 2 DAY ☐ 3 DAY ☐
7 DAY ☒ 10 DAY ☐ Other:

Method Of Shipment
☐ Courier
☒ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival:

Report number: 634274

Sajpa Rahj
19/12/18 8:00 AM

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
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☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
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☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: GHD Pty Ltd
OFFICE: Sydney
PROJECT: 21-27234
ORDER NUMBER:
PROJECT MANAGER: Henry Luo
CONTACT PH: 02 9239 7044 / 0414 090 002
SAMPLER: Terry Nham
SAMPLER MOBILE: 0403 251 883
COC emailed to ALS? (YES / NO)
EDD FORMAT (or default):
Email Reports to: henry.luo@ghd.com terry.nham@ghd.com
Email Invoice to (will default to PM if no other addresses are listed):

TURNAROUND REQUIREMENT (Standard TAT may be longer for some tests e.g.. Ultra Trace)
☒ Standard TAT (List due date):
☐ Non Standard or urgent TAT (List due date):
ALS QUOTE NO.: EN/005/18

COC SEQUENCE NUMBER (Circle)
COC: 1 2 3 4 5 6 7
OF: 1 2 3 4 5 6 7

FOR LABORATORY USE ONLY (Circle)
Custody Seal Intact? Yes No N/A
Free ice / frozen ice bricks present upon receipt? Yes No N/A
Random Sample Temperature on Receipt: °C
Other comment:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Terry Nham (GHD)			
DATE/TIME: 18/12/18	DATE/TIME: 18/12 1:27pm	DATE/TIME:	DATE/TIME: 19/12 8:00am

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

634274

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	TRH / BTEX / PAH / 8 Metals (W-26)
	QA02	17/12/18	Water		9	X
					TOTAL	

SENT TO ALS

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; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial 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.

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Henry Luo**

Report **634274-W**
Project name CENTRAL
Project ID 21-27234
Received Date Dec 18, 2018

Client Sample ID			**SRT_BH063**	**SRT_BH059**	**SRT_CBH015**	**SRT_CBH017**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M18-De29533**	**M18-De29534**	**M18-De29535**	**M18-De29536**
Date Sampled			**Dec 17, 2018**	**Dec 17, 2018**	**Dec 17, 2018**	**Dec 17, 2018**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	0.002	0.002	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	108	113	147	136
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			SRT_BH063	SRT_BH059	SRT_CBH015	SRT_CBH017
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-De29533	M18-De29534	M18-De29535	M18-De29536
Date Sampled			Dec 17, 2018	Dec 17, 2018	Dec 17, 2018	Dec 17, 2018
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	133	132	79	83
p-Terphenyl-d14 (surr.)	1	%	119	140	92	62
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4.4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Toxaphene	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	82	98	120	62
Tetrachloro-m-xylene (surr.)	1	%	92	101	105	50
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			SRT_BH063	SRT_BH059	SRT_CBH015	SRT_CBH017
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M18-De29533**	**M18-De29534**	**M18-De29535**	**M18-De29536**
Date Sampled			**Dec 17, 2018**	**Dec 17, 2018**	**Dec 17, 2018**	**Dec 17, 2018**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	94	99	108	71
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	82	98	120	62
Tetrachloro-m-xylene (surr.)	1	%	92	101	105	50
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003

Client Sample ID			SRT_BH063	SRT_BH059	SRT_CBH015	SRT_CBH017
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-De29533	M18-De29534	M18-De29535	M18-De29536
Date Sampled			Dec 17, 2018	Dec 17, 2018	Dec 17, 2018	Dec 17, 2018
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	87	68	67	111
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Chloride	1	mg/L	76	10	12	11
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.05	mg/L	0.39	0.80	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	0.24	7.9	3.7	2.5
Sulphate (as SO4)	5	mg/L	56	24	52	17
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	290	170	33	42
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	58	70	3.4	19
Magnesium	0.5	mg/L	33	5.7	5.0	9.0
Potassium	0.5	mg/L	6.4	7.6	3.6	3.2
Sodium	0.5	mg/L	75	11	28	17
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.003	0.056	0.019	0.003
Lead (filtered)	0.001	mg/L	0.005	0.003	0.002	< 0.001
Manganese (filtered)	0.005	mg/L	< 0.005	< 0.005	5.4	1.8
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.005	0.007	0.011	0.008
Zinc (filtered)	0.005	mg/L	0.019	0.053	0.040	0.017

Client Sample ID			SRT_BH052	SRT_BH047	QA01	RB01
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M18-De29537**	**M18-De29538**	**M18-De29539**	**M18-De29540**
Date Sampled			**Dec 18, 2018**	**Dec 18, 2018**	**Dec 17, 2018**	**Dec 17, 2018**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Toluene	0.001	mg/L	0.002	0.002	< 0.001	-
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
4-Bromofluorobenzene (surr.)	1	%	111	137	111	-
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
2-Fluorobiphenyl (surr.)	1	%	71	90	138	-
p-Terphenyl-d14 (surr.)	1	%	78	71	120	-
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	-	-
4.4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	-	-
4.4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	-	-
4.4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	-	-
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	-	-

Client Sample ID			SRT_BH052	SRT_BH047	QA01	RB01
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M18-De29537**	**M18-De29538**	**M18-De29539**	**M18-De29540**
Date Sampled			**Dec 18, 2018**	**Dec 18, 2018**	**Dec 17, 2018**	**Dec 17, 2018**
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	-	-
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	-	-
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Toxaphene	0.01	mg/L	< 0.01	< 0.01	-	-
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	-	-
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	-	-
Dibutylchlorendate (surr.)	1	%	81	72	-	-
Tetrachloro-m-xylene (surr.)	1	%	84	52	-	-
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	-	-
Bolstar	0.002	mg/L	< 0.002	< 0.002	-	-
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	-	-
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	-	-
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	-	-
Coumaphos	0.02	mg/L	< 0.02	< 0.02	-	-
Demeton-S	0.02	mg/L	< 0.02	< 0.02	-	-
Demeton-O	0.002	mg/L	< 0.002	< 0.002	-	-
Diazinon	0.002	mg/L	< 0.002	< 0.002	-	-
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	-	-
Dimethoate	0.002	mg/L	< 0.002	< 0.002	-	-
Disulfoton	0.002	mg/L	< 0.002	< 0.002	-	-
EPN	0.002	mg/L	< 0.002	< 0.002	-	-
Ethion	0.002	mg/L	< 0.002	< 0.002	-	-
Ethoprop	0.002	mg/L	< 0.002	< 0.002	-	-
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	-	-
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	-	-
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	-	-
Fenthion	0.002	mg/L	< 0.002	< 0.002	-	-
Malathion	0.002	mg/L	< 0.002	< 0.002	-	-
Merphos	0.002	mg/L	< 0.002	< 0.002	-	-
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	-	-
Mevinphos	0.002	mg/L	< 0.002	< 0.002	-	-
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	-	-
Naled	0.002	mg/L	< 0.002	< 0.002	-	-
Omethoate	0.002	mg/L	< 0.002	< 0.002	-	-
Phorate	0.002	mg/L	< 0.002	< 0.002	-	-

Client Sample ID			SRT_BH052	SRT_BH047	QA01	RB01
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M18-De29537**	**M18-De29538**	**M18-De29539**	**M18-De29540**
Date Sampled			**Dec 18, 2018**	**Dec 18, 2018**	**Dec 17, 2018**	**Dec 17, 2018**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	-	-
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	-	-
Ronnel	0.002	mg/L	< 0.002	< 0.002	-	-
Terbufos	0.002	mg/L	< 0.002	< 0.002	-	-
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	-	-
Tokuthion	0.002	mg/L	< 0.002	< 0.002	-	-
Trichloronate	0.002	mg/L	< 0.002	< 0.002	-	-
Triphenylphosphate (surr.)	1	%	97	85	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	-	-
Total PCB*	0.001	mg/L	< 0.001	< 0.001	-	-
Dibutylchlorendate (surr.)	1	%	81	72	-	-
Tetrachloro-m-xylene (surr.)	1	%	84	52	-	-
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	-	-
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	-	-
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	-	-
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	-	-
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	-	-
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	-	-
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	-	-
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	-	-
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	-	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	-	-
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	-	-
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	-	-
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	-	-
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	-	-
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	-	-
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	-	-
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	-	-
Dinoseb	0.1	mg/L	< 0.1	< 0.1	-	-
Phenol	0.003	mg/L	< 0.003	< 0.003	-	-
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	-	-
Phenol-d6 (surr.)	1	%	25	101	-	-
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	-	-
TRH >C16-C34 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	-	-
TRH >C34-C40 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	-	-

Client Sample ID			SRT_BH052	SRT_BH047	QA01	RB01
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M18-De29537	M18-De29538	M18-De29539	M18-De29540
Date Sampled			Dec 18, 2018	Dec 18, 2018	Dec 17, 2018	Dec 17, 2018
Test/Reference	LOR	Unit				
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	-	-
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	-	-
TRH C15-C28 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	-	-
TRH C29-C36 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	-	-
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	-	-
Chloride	1	mg/L	43	33	-	-
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	-	-
Ferrous Iron - Fe2+	0.05	mg/L	< 0.05	0.06	-	-
Nitrate (as N)	0.02	mg/L	10	22	-	-
Sulphate (as SO4)	5	mg/L	18	16	-	-
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	35	63	-	-
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	-	-
Alkali Metals						
Calcium	0.5	mg/L	17	35	-	-
Magnesium	0.5	mg/L	4.1	8.0	-	-
Potassium	0.5	mg/L	1.1	1.6	-	-
Sodium	0.5	mg/L	38	31	-	-
Heavy Metals						
Arsenic	0.001	mg/L	-	-	-	< 0.001
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Cadmium	0.0002	mg/L	-	-	-	< 0.0002
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	-
Chromium	0.001	mg/L	-	-	-	< 0.001
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Copper	0.001	mg/L	-	-	-	< 0.001
Copper (filtered)	0.001	mg/L	0.018	0.021	0.002	-
Lead	0.001	mg/L	-	-	-	< 0.001
Lead (filtered)	0.001	mg/L	0.001	0.002	0.003	-
Manganese (filtered)	0.005	mg/L	0.020	0.009	-	-
Mercury	0.0001	mg/L	-	-	-	< 0.0001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Nickel	0.001	mg/L	-	-	-	< 0.001
Nickel (filtered)	0.001	mg/L	0.004	0.004	0.004	-
Zinc	0.005	mg/L	-	-	-	< 0.005
Zinc (filtered)	0.005	mg/L	0.023	0.031	0.015	-

Client Sample ID			TRIP BALNK	[R20]TRIP SPIKE
Sample Matrix			Water	Water
Eurofins | mgt Sample No.			M18-De29541	M18-De29542
Date Sampled			Dec 17, 2018	Dec 17, 2018
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.01	mg/L	< 0.01	100
TRH C6-C10	0.02	mg/L	< 0.02	77
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	-

Client Sample ID			TRIP BALNK	R20TRIP SPIKE
Sample Matrix			Water	Water
Eurofins | mgt Sample No.			M18-De29541	M18-De29542
Date Sampled			Dec 17, 2018	Dec 17, 2018
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	0.02	mg/L	< 0.02	76
BTEX				
Benzene	0.001	mg/L	< 0.001	92
Toluene	0.001	mg/L	< 0.001	100
Ethylbenzene	0.001	mg/L	< 0.001	100
m&p-Xylenes	0.002	mg/L	< 0.002	93
o-Xylene	0.001	mg/L	< 0.001	100
Xylenes - Total	0.003	mg/L	< 0.003	97
4-Bromofluorobenzene (surr.)	1	%	110	115

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

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 - 2013 NEPM Fractions	Melbourne	Dec 27, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Melbourne	Dec 27, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Dec 27, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Dec 27, 2018	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Eurofins | mgt Suite B7A (filtered metals)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Dec 27, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Jan 02, 2019	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Melbourne	Jan 02, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Jan 02, 2019	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8 filtered	Melbourne	Dec 27, 2018	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins | mgt Suite B15			
Organochlorine Pesticides	Melbourne	Jan 02, 2019	7 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Melbourne	Jan 02, 2019	7 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Melbourne	Jan 02, 2019	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
TRH - 2013 NEPM Fractions (after silica gel clean-up)	Melbourne	Dec 27, 2018	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
TRH - 1999 NEPM Fractions (after silica gel clean-up)	Melbourne	Dec 27, 2018	7 Day
- Method: TRH C6-C36 (Silica Gel Cleanup) - MGT 100A			
Eurofins | mgt Suite B11			
Ammonia (as N)	Melbourne	Dec 27, 2018	28 Day
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Chloride	Melbourne	Dec 27, 2018	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Nitrate (as N)	Melbourne	Dec 27, 2018	28 Day
- Method: APHA 4500-NO3 Nitrate Nitrogen by FIA			
Sulphate (as SO4)	Melbourne	Dec 27, 2018	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Dec 27, 2018	14 Day
- Method: APHA 2320 Alkalinity by Titration			
Alkali Metals	Melbourne	Dec 27, 2018	180 Day
- Method: LTM-MET-3010 Alkali Metals S Si and P by ICP-AES			
Cyanide (total)	Melbourne	Jan 02, 2019	14 Day
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Ferrous Iron - Fe2+	Melbourne	Dec 27, 2018	7 Days
- Method: LTM-INO-4190 Ferrous Iron in Water by Discrete Analyser			
Metals M8	Melbourne	Dec 27, 2018	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Heavy Metals (filtered)	Melbourne	Dec 27, 2018	180 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

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NATA # 1261
Site # 23736

Company Name: GHD Pty Ltd NSW
Address: Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Project Name: CENTRAL
Project ID: 21-27234

Order No.:
Report #: 634274
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Dec 18, 2018 1:27 PM
Due: Jan 4, 2019
Priority: 10 Day
Contact Name: Henry Luo

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	Metals M8	Eurofins | mgt Suite B15	Eurofins | mgt Suite B11	TRH (after Silica Gel cleanup)	Eurofins | mgt Suite B7 (filtered metals)	Eurofins | mgt Suite B7A (filtered metals)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794															
Perth Laboratory - NATA Site # 23736															
External Laboratory															
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**										
1	SRT_BH063	Dec 17, 2018		Water	M18-De29533	X	X	X		X	X	X		X	
2	SRT_BH059	Dec 17, 2018		Water	M18-De29534	X	X	X		X	X	X		X	
3	SRT_CBH015	Dec 17, 2018		Water	M18-De29535	X	X	X		X	X	X		X	
4	SRT_CBH017	Dec 17, 2018		Water	M18-De29536	X	X	X		X	X	X		X	
5	SRT_BH052	Dec 18, 2018		Water	M18-De29537	X	X	X		X	X	X		X	
6	SRT_BH047	Dec 18, 2018		Water	M18-De29538	X	X	X		X	X	X		X	
7	QA01	Dec 17, 2018		Water	M18-De29539								X		
8	RB01	Dec 17, 2018		Water	M18-De29540				X						
9	TRIP BALNK	Dec 17, 2018		Water	M18-De29541										X

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Sample Detail						Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	Metals M8	Eurofins | mgt Suite B15	Eurofins | mgt Suite B11	TRH (after Silica Gel cleanup)	Eurofins | mgt Suite B7 (filtered metals)	Eurofins | mgt Suite B7A (filtered metals)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217															
Brisbane Laboratory - NATA Site # 20794															
Perth Laboratory - NATA Site # 23736															
10	TRIP SPIKE	Dec 17, 2018		Water	M18-De29542										X
Test Counts						6	6	6	1	6	6	6	1	6	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil 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. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
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							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.001			0.001	Pass	
4.4'-DDD	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDE	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDT	mg/L	< 0.0001			0.0001	Pass	
a-BHC	mg/L	< 0.0001			0.0001	Pass	
Aldrin	mg/L	< 0.0001			0.0001	Pass	
b-BHC	mg/L	< 0.0001			0.0001	Pass	
d-BHC	mg/L	< 0.0001			0.0001	Pass	
Dieldrin	mg/L	< 0.0001			0.0001	Pass	
Endosulfan I	mg/L	< 0.0001			0.0001	Pass	
Endosulfan II	mg/L	< 0.0001			0.0001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/L	< 0.0001			0.0001	Pass	
Endrin	mg/L	< 0.0001			0.0001	Pass	
Endrin aldehyde	mg/L	< 0.0001			0.0001	Pass	
Endrin ketone	mg/L	< 0.0001			0.0001	Pass	
g-BHC (Lindane)	mg/L	< 0.0001			0.0001	Pass	
Heptachlor	mg/L	< 0.0001			0.0001	Pass	
Heptachlor epoxide	mg/L	< 0.0001			0.0001	Pass	
Hexachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
Methoxychlor	mg/L	< 0.0001			0.0001	Pass	
Toxaphene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/L	< 0.002			0.002	Pass	
Bolstar	mg/L	< 0.002			0.002	Pass	
Chlorfenvinphos	mg/L	< 0.002			0.002	Pass	
Chlorpyrifos	mg/L	< 0.02			0.02	Pass	
Chlorpyrifos-methyl	mg/L	< 0.002			0.002	Pass	
Coumaphos	mg/L	< 0.02			0.02	Pass	
Demeton-S	mg/L	< 0.02			0.02	Pass	
Demeton-O	mg/L	< 0.002			0.002	Pass	
Diazinon	mg/L	< 0.002			0.002	Pass	
Dichlorvos	mg/L	< 0.002			0.002	Pass	
Dimethoate	mg/L	< 0.002			0.002	Pass	
Disulfoton	mg/L	< 0.002			0.002	Pass	
EPN	mg/L	< 0.002			0.002	Pass	
Ethion	mg/L	< 0.002			0.002	Pass	
Ethoprop	mg/L	< 0.002			0.002	Pass	
Ethyl parathion	mg/L	< 0.002			0.002	Pass	
Fenitrothion	mg/L	< 0.002			0.002	Pass	
Fensulfothion	mg/L	< 0.002			0.002	Pass	
Fenthion	mg/L	< 0.002			0.002	Pass	
Malathion	mg/L	< 0.002			0.002	Pass	
Merphos	mg/L	< 0.002			0.002	Pass	
Methyl parathion	mg/L	< 0.002			0.002	Pass	
Mevinphos	mg/L	< 0.002			0.002	Pass	
Monocrotophos	mg/L	< 0.002			0.002	Pass	
Naled	mg/L	< 0.002			0.002	Pass	
Omethoate	mg/L	< 0.002			0.002	Pass	
Phorate	mg/L	< 0.002			0.002	Pass	
Pirimiphos-methyl	mg/L	< 0.02			0.02	Pass	
Pyrazophos	mg/L	< 0.002			0.002	Pass	
Ronnel	mg/L	< 0.002			0.002	Pass	
Terbufos	mg/L	< 0.002			0.002	Pass	
Tetrachlorvinphos	mg/L	< 0.002			0.002	Pass	
Tokuthion	mg/L	< 0.002			0.002	Pass	
Trichloronate	mg/L	< 0.002			0.002	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/L	< 0.001			0.001	Pass	
Aroclor-1221	mg/L	< 0.001			0.001	Pass	
Aroclor-1232	mg/L	< 0.001			0.001	Pass	
Aroclor-1242	mg/L	< 0.001			0.001	Pass	
Aroclor-1248	mg/L	< 0.001			0.001	Pass	
Aroclor-1254	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1260	mg/L	< 0.001			0.001	Pass	
Total PCB*	mg/L	< 0.001			0.001	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4.5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.4.6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/L	< 0.1			0.1	Pass	
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2.4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chloride	mg/L	< 1			1	Pass	
Cyanide (total)	mg/L	< 0.005			0.005	Pass	
Ferrous Iron - Fe2+	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Sulphate (as SO4)	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO3)	mg/L	< 10			10	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Mercury	mg/L	< 0.0001			0.0001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	88			70-130	Pass	
Naphthalene	%	89			70-130	Pass	
TRH C6-C10	%	117			70-130	Pass	
TRH C6-C10	%	116			70-130	Pass	
TRH >C10-C16	%	112			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	118			70-130	Pass	
TRH C10-C14	%	100			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	114			70-130	Pass	
Toluene	%	99			70-130	Pass	
Ethylbenzene	%	94			70-130	Pass	
m&p-Xylenes	%	94			70-130	Pass	
Xylenes - Total	%	95			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	119			70-130	Pass	
Acenaphthylene	%	108			70-130	Pass	
Anthracene	%	102			70-130	Pass	
Benz(a)anthracene	%	105			70-130	Pass	
Benzo(a)pyrene	%	113			70-130	Pass	
Benzo(b&j)fluoranthene	%	113			70-130	Pass	
Benzo(g.h.i)perylene	%	105			70-130	Pass	
Benzo(k)fluoranthene	%	121			70-130	Pass	
Chrysene	%	120			70-130	Pass	
Dibenz(a.h)anthracene	%	120			70-130	Pass	
Fluoranthene	%	115			70-130	Pass	
Fluorene	%	103			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	117			70-130	Pass	
Naphthalene	%	108			70-130	Pass	
Phenanthrene	%	123			70-130	Pass	
Pyrene	%	116			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	108			70-130	Pass	
4.4'-DDD	%	92			70-130	Pass	
4.4'-DDE	%	103			70-130	Pass	
4.4'-DDT	%	106			70-130	Pass	
a-BHC	%	109			70-130	Pass	
Aldrin	%	112			70-130	Pass	
b-BHC	%	115			70-130	Pass	
d-BHC	%	114			70-130	Pass	
Dieldrin	%	123			70-130	Pass	
Endosulfan I	%	107			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan II	%	109			70-130	Pass	
Endosulfan sulphate	%	112			70-130	Pass	
Endrin	%	97			70-130	Pass	
Endrin aldehyde	%	105			70-130	Pass	
Endrin ketone	%	84			70-130	Pass	
g-BHC (Lindane)	%	110			70-130	Pass	
Heptachlor	%	95			70-130	Pass	
Heptachlor epoxide	%	102			70-130	Pass	
Hexachlorobenzene	%	113			70-130	Pass	
Methoxychlor	%	89			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2.4-Dichlorophenol	%	68			30-130	Pass	
2.4.5-Trichlorophenol	%	92			30-130	Pass	
2.4.6-Trichlorophenol	%	109			30-130	Pass	
2.6-Dichlorophenol	%	68			30-130	Pass	
4-Chloro-3-methylphenol	%	117			30-130	Pass	
Pentachlorophenol	%	107			30-130	Pass	
Tetrachlorophenols - Total	%	107			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	110			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	95			30-130	Pass	
2-Methylphenol (o-Cresol)	%	102			30-130	Pass	
2-Nitrophenol	%	77			30-130	Pass	
2.4-Dinitrophenol	%	112			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	95			30-130	Pass	
4-Nitrophenol	%	115			30-130	Pass	
Dinoseb	%	100			30-130	Pass	
Phenol	%	119			30-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	103			70-130	Pass	
Chloride	%	116			70-130	Pass	
Cyanide (total)	%	106			70-130	Pass	
Ferrous Iron - Fe2+	%	100			70-130	Pass	
Nitrate (as N)	%	102			70-130	Pass	
Sulphate (as SO4)	%	112			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO3)	%	91			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	109			70-130	Pass	
Magnesium	%	111			70-130	Pass	
Potassium	%	100			70-130	Pass	
Sodium	%	102			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	91			80-120	Pass	
Arsenic (filtered)	%	96			80-120	Pass	
Cadmium	%	94			80-120	Pass	
Cadmium (filtered)	%	99			80-120	Pass	
Chromium	%	91			80-120	Pass	
Chromium (filtered)	%	94			80-120	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Copper			%	91			80-120	Pass	
Copper (filtered)			%	93			80-120	Pass	
Lead			%	93			80-120	Pass	
Lead (filtered)			%	96			80-120	Pass	
Manganese (filtered)			%	98			80-120	Pass	
Mercury			%	92			75-125	Pass	
Mercury (filtered)			%	90			70-130	Pass	
Nickel			%	89			80-120	Pass	
Nickel (filtered)			%	94			80-120	Pass	
Zinc			%	92			80-120	Pass	
Zinc (filtered)			%	96			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Indeno(1.2.3-cd)pyrene	S18-De22978	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	S18-De22978	NCP	%	113			30-130	Pass	
2.4-Dichlorophenol	S18-De22978	NCP	%	115			30-130	Pass	
2.4.6-Trichlorophenol	S18-De22978	NCP	%	120			30-130	Pass	
2.6-Dichlorophenol	S18-De22978	NCP	%	116			30-130	Pass	
4-Chloro-3-methylphenol	S18-De22978	NCP	%	124			30-130	Pass	
Pentachlorophenol	S18-De22978	NCP	%	90			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	S18-De22978	NCP	%	123			30-130	Pass	
2-Methyl-4.6-dinitrophenol	S18-De22978	NCP	%	113			30-130	Pass	
2-Methylphenol (o-Cresol)	S18-De22978	NCP	%	107			30-130	Pass	
2-Nitrophenol	S18-De22978	NCP	%	119			30-130	Pass	
2.4-Dimethylphenol	S18-De22978	NCP	%	81			30-130	Pass	
2.4-Dinitrophenol	S18-De22978	NCP	%	66			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	S18-De22978	NCP	%	109			30-130	Pass	
4-Nitrophenol	S18-De22978	NCP	%	96			30-130	Pass	
Dinoseb	S18-De22978	NCP	%	126			30-130	Pass	
Phenol	S18-De22978	NCP	%	91			30-130	Pass	
Spike - % Recovery									
TRH - 2013 NEPM Fractions (after silica gel clean-up)				Result 1					
TRH >C10-C16 (after silica gel clean-up)	B18-De27909	NCP	%	80			70-130	Pass	
Spike - % Recovery									
TRH - 1999 NEPM Fractions (after silica gel clean-up)				Result 1					
TRH C10-C14 (after silica gel clean-up)	B18-De27909	NCP	%	82			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M18-De28117	NCP	%	104			70-130	Pass	
Chloride	M18-De26753	NCP	%	96			70-130	Pass	
Nitrate (as N)	M18-De28117	NCP	%	105			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M18-De27811	NCP	%	92			70-130	Pass	
Cadmium (filtered)	M18-De27811	NCP	%	89			70-130	Pass	
Chromium (filtered)	M18-De27811	NCP	%	89			70-130	Pass	
Copper (filtered)	M18-De27811	NCP	%	83			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead (filtered)	M18-De27811	NCP	%	85			70-130	Pass	
Manganese (filtered)	M18-De27811	NCP	%	95			70-130	Pass	
Mercury (filtered)	M18-De27811	NCP	%	81			70-130	Pass	
Nickel (filtered)	M18-De27811	NCP	%	89			70-130	Pass	
Zinc (filtered)	M18-De27811	NCP	%	122			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M18-De29535	CP	%	127			70-130	Pass	
Magnesium	M18-De29535	CP	%	115			70-130	Pass	
Potassium	M18-De29535	CP	%	114			70-130	Pass	
Sodium	M18-De29535	CP	%	116			70-130	Pass	
Spike - % Recovery									
				Result 1					
Cyanide (total)	M18-De29538	CP	%	108			70-130	Pass	
Ferrous Iron - Fe2+	M18-De29538	CP	%	79			70-130	Pass	
Sulphate (as SO4)	M18-De29538	CP	%	96			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M18-De29539	CP	%	110			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	M18-De29539	CP	%	106			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M18-De29539	CP	%	96			70-130	Pass	
Acenaphthylene	M18-De29539	CP	%	94			70-130	Pass	
Anthracene	M18-De29539	CP	%	97			70-130	Pass	
Benz(a)anthracene	M18-De29539	CP	%	114			70-130	Pass	
Benzo(a)pyrene	M18-De29539	CP	%	86			70-130	Pass	
Benzo(b&j)fluoranthene	M18-De29539	CP	%	87			70-130	Pass	
Benzo(g.h.i)perylene	M18-De29539	CP	%	89			70-130	Pass	
Benzo(k)fluoranthene	M18-De29539	CP	%	99			70-130	Pass	
Chrysene	M18-De29860	NCP	%	99			70-130	Pass	
Dibenz(a.h)anthracene	M18-De29539	CP	%	72			70-130	Pass	
Fluoranthene	M18-De29539	CP	%	89			70-130	Pass	
Fluorene	M18-De29539	CP	%	86			70-130	Pass	
Naphthalene	M18-De29539	CP	%	88			70-130	Pass	
Phenanthrene	M18-De29539	CP	%	102			70-130	Pass	
Pyrene	M18-De29539	CP	%	91			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S18-De25376	NCP	%	92			75-125	Pass	
Cadmium	S18-De25376	NCP	%	94			75-125	Pass	
Chromium	S18-De25376	NCP	%	91			75-125	Pass	
Copper	S18-De25376	NCP	%	88			75-125	Pass	
Lead	S18-De25376	NCP	%	91			75-125	Pass	
Mercury	S18-De25376	NCP	%	88			70-130	Pass	
Nickel	S18-De25376	NCP	%	88			75-125	Pass	
Zinc	S18-De25376	NCP	%	101			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	M18-De29812	NCP	mg/L	1.6	1.8	16	30%	Pass	
TRH >C16-C34	M18-De29812	NCP	mg/L	2.4	3.1	22	30%	Pass	
TRH >C34-C40	M18-De29812	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	M18-De29812	NCP	mg/L	0.62	0.79	25	30%	Pass	
TRH C15-C28	M18-De29812	NCP	mg/L	3.5	4.3	19	30%	Pass	
TRH C29-C36	M18-De29812	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M18-De31635	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	M18-De31635	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	M18-De31635	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	M18-De31635	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	M18-De31635	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M18-De31635	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	M18-De31635	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	M18-De31635	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	M18-De31635	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	M18-De31635	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	M18-De31635	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	M18-De31635	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M18-De31635	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	M18-De31635	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	M18-De31635	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	M18-De31635	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M18-De31635	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4.4'-DDD	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDE	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDT	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
a-BHC	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Aldrin	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
b-BHC	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
d-BHC	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Dieldrin	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan I	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan II	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan sulphate	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin aldehyde	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin ketone	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
g-BHC (Lindane)	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor epoxide	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Hexachlorobenzene	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Methoxychlor	M18-De31635	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Bolstar	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorfenvinphos	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorpyrifos	M18-De31635	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Chlorpyrifos-methyl	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Coumaphos	M18-De31635	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-S	M18-De31635	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-O	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Diazinon	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Dichlorvos	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dimethoate	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Disulfoton	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
EPN	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethion	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethoprop	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethyl parathion	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenitrothion	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fensulfothion	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenthion	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Malathion	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Merphos	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methyl parathion	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Mevinphos	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Monocrotophos	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Naled	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Omethoate	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Phorate	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Pirimiphos-methyl	M18-De31635	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Pyrazophos	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ronnel	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Terbufos	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tetrachlorvinphos	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tokuthion	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Trichloronate	M18-De31635	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M18-De31635	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dichlorophenol	M18-De31635	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4.5-Trichlorophenol	M18-De31635	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	M18-De31635	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	M18-De31635	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
4-Chloro-3-methylphenol	M18-De31635	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Pentachlorophenol	M18-De31635	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Tetrachlorophenols - Total	M18-De31635	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M18-De31635	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M18-De31635	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M18-De31635	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Nitrophenol	M18-De31635	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dimethylphenol	M18-De31635	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	M18-De31635	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M18-De31635	NCP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
4-Nitrophenol	M18-De31635	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Dinoseb	M18-De31635	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Phenol	M18-De31635	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M18-De28117	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Chloride	M18-De28119	NCP	mg/L	850	830	2.0	30%	Pass	
Ferrous Iron - Fe2+	M18-De29533	CP	mg/L	0.39	< 0.05	190	30%	Fail	Q15
Nitrate (as N)	M18-De28117	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Sulphate (as SO4)	M18-De28119	NCP	mg/L	67	65	3.0	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M18-De27811	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	M18-De27811	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M18-De27811	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	M18-De27811	NCP	mg/L	0.010	0.010	2.0	30%	Pass	
Lead (filtered)	M18-De27811	NCP	mg/L	0.001	0.001	1.0	30%	Pass	
Manganese (filtered)	M18-De27811	NCP	mg/L	0.13	0.13	<1	30%	Pass	
Mercury (filtered)	M18-De27811	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M18-De27811	NCP	mg/L	0.10	0.10	1.0	30%	Pass	
Zinc (filtered)	M18-De27811	NCP	mg/L	0.010	0.010	2.0	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M18-De29535	CP	mg/L	3.4	3.4	<1	30%	Pass	
Magnesium	M18-De29535	CP	mg/L	5.0	5.0	<1	30%	Pass	
Potassium	M18-De29535	CP	mg/L	3.6	3.7	2.0	30%	Pass	
Sodium	M18-De29535	CP	mg/L	28	29	2.0	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M18-De29536	CP	mg/L	42	42	<1	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M18-De29536	CP	mg/L	< 10	< 10	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Cyanide (total)	M18-De29538	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S18-De25376	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	S18-De25376	NCP	mg/L	< 0.0002	0.0003	75	30%	Fail	Q15
Chromium	S18-De25376	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	S18-De25376	NCP	mg/L	0.001	0.002	18	30%	Pass	
Lead	S18-De25376	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	S18-De25376	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	S18-De25376	NCP	mg/L	0.005	0.005	<1	30%	Pass	
Zinc	S18-De25376	NCP	mg/L	0.023	0.026	10	30%	Pass	

Comments

Eurofins | mgt accreditation number 1261, corporate site 1254 and 14271 is currently in progress of a controlled transition to a new custom built location at 6 Monterey Road, Dandenong South, Victoria 3175. All results on this report denoted as being performed by Eurofins | mgt 2-5 Kingston Town Close, Oakleigh Victoria 3166 corporate site 1254, will have been performed on either Oakleigh or new Dandenong South site.

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.
R20	This sample is a Trip Spike and therefore all results are reported as a percentage

Authorised By

Nibha Vaidya	Analytical Services Manager
Chris Bennett	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Julie Kay	Senior Analyst-Inorganic (VIC)



Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

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

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

eurofins

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CHAIN OF CUSTODY RECORD

Page 1 of 1

CLIENT DETAILS

Company Name: GHD Pty Ltd, Sydney	Contact Name: Terry Nham	Purchase Order:	COC Number:
Office Address: Level 15, 133 Castlereagh Street, Sydney NSW 2000	Project Manager: Penny Lin	PROJECT Number: 21-27217	Eurofins | mgt quote ID: GHD Sydney 2019
	Email for results: [illegible]	PROJECT Name: Cement	Data output format: ESDAT

Special Directions & Comments:

Eurofins \| mgt Use Only Batch Number:

Analytes

	Sample ID	Date	Matrix	TRH, BTEX, OAH & Metals (Suite ES1)	OCP, OPP, PCB (Suite ES5)	TRH (w/o Silica Gel Cleanup)	Cyanide	Ammonia	Nitrate as Nitrogen (Dissolved)	TRH C6-C10 + BTEX	8 Metals	TRH, BTEX, PAH & Metals (ES7)	Ammonia	Manganese
1	SRT_BH01	[illegible]	Water	X	X	X	X	X	X				X	X
2	SRT_BH02	[illegible]	Water	X	X	X	X	X	X				X	X
3	SRT_BH09	[illegible]	Water	X	X	X	X	X	X				X	X
4	SRT_BH03	[illegible]	Water	X	X	X	X	X	X				X	X
5	SRT_DUP01	[illegible]	Water	X	X	X	X	X	X			X	X	X
6	SRT_DUP02	[illegible]	Water	X	X	X	X	X	X			X	X	X
7	QA01	[illegible]	Water											
8	QA02	[illegible]	Water	PLEASE SEND TO [illegible] WITH ATTACHMENTS										
9	RB01	[illegible]	Water								X			
10	TRIP BLANK	[illegible]	Water							X				
11	TRIP SPIKE	[illegible]	Water							X				
12														
13														
14														
15														
16														

Some common holding times (with correct preservation):
Refer to ALS website for full list

Waters		Soils	
BTEX, MAH, VOC	14 days	OCP, PCB, VOC	14 days
TPH, PAH, Phenols, Pesticides	7 days	TPH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury (Hg)	28 days	Mercury (Hg)	28 days
Microbiological tests	24 hours	Microbiological tests	24 hours
SVOC, Halo-alkanes, Herbicides	7 days	Asbestos	90 days
Nutrients, TSS, TDS etc	7 days	SPOCAS, pH (field and lab)	24 hours
Sulphates	7 days	ASLP, TCLP	7 days

Containers:

	500P	250P	60P	125A	250AG	40AG	1L	Bag
1			1		1	2		
2			1		1	2		
3			1		1	2		
4			1		1	2		
5			1		1	2		
6			1		1	2		
7			1		1	2		
8			1		1	2		
9			1					
10					1			
11					1			
12								
13								
14								
15								
16								

Sample comments:

Relinquished By: Terry Nham - GHD
Date & Time: 18/7/2019
Signature:

Laboratory Staff
Received By: Suzanne Ford
Date & Time: 18/7/19 4:58PM
Signature:

Turn around time:
1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment:
☐ Courier
☑ Hand Delivered
☐ Postal
Courier Consignment #:

Temperature on arrival: 4.23°C
Report number: 636542

Doc No: F... Issue Date: 25 February 20... Page: 1

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Henry Luo**

Report **636542-W**
Project name CENTRAL
Project ID 21-27234
Received Date Jan 18, 2019

Client Sample ID			**SRT_BH047**	**SRT_BH052**	**SRT_BH059**	**SRT_BH063**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Ja13887**	**S19-Ja13888**	**S19-Ja13889**	**S19-Ja13890**
Date Sampled			**Jan 17, 2019**	**Jan 17, 2019**	**Jan 18, 2019**	**Jan 17, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	82	81	81	85
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			SRT_BH047	SRT_BH052	SRT_BH059	SRT_BH063
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ja13887	S19-Ja13888	S19-Ja13889	S19-Ja13890
Date Sampled			Jan 17, 2019	Jan 17, 2019	Jan 18, 2019	Jan 17, 2019
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	67	66	71	63
p-Terphenyl-d14 (surr.)	1	%	91	99	92	91
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4.4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Toxaphene	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	117	125	107	110
Tetrachloro-m-xylene (surr.)	1	%	145	144	138	134
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			SRT_BH047	SRT_BH052	SRT_BH059	SRT_BH063
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ja13887	S19-Ja13888	S19-Ja13889	S19-Ja13890
Date Sampled			Jan 17, 2019	Jan 17, 2019	Jan 18, 2019	Jan 17, 2019
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	101	98	101	97
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	117	125	107	110
Tetrachloro-m-xylene (surr.)	1	%	145	144	138	134
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003

Client Sample ID			SRT_BH047	SRT_BH052	SRT_BH059	SRT_BH063
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ja13887	S19-Ja13888	S19-Ja13889	S19-Ja13890
Date Sampled			Jan 17, 2019	Jan 17, 2019	Jan 18, 2019	Jan 17, 2019
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	84	96	65	60
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Chloride	1	mg/L	23	42	8.1	68
Cyanide (total)	0.005	mg/L	0.020	0.020	0.017	0.018
Ferrous Iron - Fe2+	0.05	mg/L	0.05	< 0.05	< 0.05	0.05
Nitrate (as N)	0.02	mg/L	19	9.1	2.8	0.13
Sulphate (as SO4)	5	mg/L	11	27	13	52
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	190	47	170	290
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	61	18	64	57
Magnesium	0.5	mg/L	6.8	4.5	6.1	32
Potassium	0.5	mg/L	0.9	1.0	5.9	5.4
Sodium	0.5	mg/L	29	39	9.5	70
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.016	0.32	0.040	0.047
Lead (filtered)	0.001	mg/L	0.001	0.019	0.002	0.003
Manganese (filtered)	0.005	mg/L	< 0.005	0.029	< 0.005	0.011
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.005	0.013	0.007	0.013
Zinc (filtered)	0.005	mg/L	0.053	0.44	0.054	0.11

Client Sample ID			SRT_CBH015	SRT_CBH017	QA01	RB01
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ja13891	S19-Ja13892	S19-Ja13893	S19-Ja13894
Date Sampled			Jan 18, 2019	Jan 18, 2019	Jan 17, 2019	Jan 17, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
4-Bromofluorobenzene (surr.)	1	%	85	88	82	-
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
2-Fluorobiphenyl (surr.)	1	%	71	68	51	-
p-Terphenyl-d14 (surr.)	1	%	95	91	91	-
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	-	-
4.4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	-	-
4.4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	-	-
4.4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	-	-
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	-	-

Client Sample ID			SRT_CBH015	SRT_CBH017	QA01	RB01
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Ja13891**	**S19-Ja13892**	**S19-Ja13893**	**S19-Ja13894**
Date Sampled			**Jan 18, 2019**	**Jan 18, 2019**	**Jan 17, 2019**	**Jan 17, 2019**
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	-	-
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	-	-
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Toxaphene	0.01	mg/L	< 0.01	< 0.01	-	-
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	-	-
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	-	-
Dibutylchlorendate (surr.)	1	%	109	104	-	-
Tetrachloro-m-xylene (surr.)	1	%	145	136	-	-
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	-	-
Bolstar	0.002	mg/L	< 0.002	< 0.002	-	-
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	-	-
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	-	-
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	-	-
Coumaphos	0.02	mg/L	< 0.02	< 0.02	-	-
Demeton-S	0.02	mg/L	< 0.02	< 0.02	-	-
Demeton-O	0.002	mg/L	< 0.002	< 0.002	-	-
Diazinon	0.002	mg/L	< 0.002	< 0.002	-	-
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	-	-
Dimethoate	0.002	mg/L	< 0.002	< 0.002	-	-
Disulfoton	0.002	mg/L	< 0.002	< 0.002	-	-
EPN	0.002	mg/L	< 0.002	< 0.002	-	-
Ethion	0.002	mg/L	< 0.002	< 0.002	-	-
Ethoprop	0.002	mg/L	< 0.002	< 0.002	-	-
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	-	-
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	-	-
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	-	-
Fenthion	0.002	mg/L	< 0.002	< 0.002	-	-
Malathion	0.002	mg/L	< 0.002	< 0.002	-	-
Merphos	0.002	mg/L	< 0.002	< 0.002	-	-
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	-	-
Mevinphos	0.002	mg/L	< 0.002	< 0.002	-	-
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	-	-
Naled	0.002	mg/L	< 0.002	< 0.002	-	-
Omethoate	0.002	mg/L	< 0.002	< 0.002	-	-
Phorate	0.002	mg/L	< 0.002	< 0.002	-	-

Client Sample ID			SRT_CBH015	SRT_CBH017	QA01	RB01
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Ja13891**	**S19-Ja13892**	**S19-Ja13893**	**S19-Ja13894**
Date Sampled			**Jan 18, 2019**	**Jan 18, 2019**	**Jan 17, 2019**	**Jan 17, 2019**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	-	-
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	-	-
Ronnel	0.002	mg/L	< 0.002	< 0.002	-	-
Terbufos	0.002	mg/L	< 0.002	< 0.002	-	-
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	-	-
Tokuthion	0.002	mg/L	< 0.002	< 0.002	-	-
Trichloronate	0.002	mg/L	< 0.002	< 0.002	-	-
Triphenylphosphate (surr.)	1	%	105	93	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	-	-
Total PCB*	0.001	mg/L	< 0.001	< 0.001	-	-
Dibutylchlorendate (surr.)	1	%	109	104	-	-
Tetrachloro-m-xylene (surr.)	1	%	145	136	-	-
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	-	-
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	-	-
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	-	-
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	-	-
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	-	-
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	-	-
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	-	-
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	-	-
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	-	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	-	-
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	-	-
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	-	-
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	-	-
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	-	-
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	-	-
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	-	-
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	-	-
Dinoseb	0.1	mg/L	< 0.1	< 0.1	-	-
Phenol	0.003	mg/L	< 0.003	< 0.003	-	-
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	-	-
Phenol-d6 (surr.)	1	%	58	66	-	-
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	-	-
TRH >C16-C34 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	-	-
TRH >C34-C40 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	-	-

Client Sample ID			SRT_CBH015	SRT_CBH017	QA01	RB01
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Ja13891**	**S19-Ja13892**	**S19-Ja13893**	**S19-Ja13894**
Date Sampled			**Jan 18, 2019**	**Jan 18, 2019**	**Jan 17, 2019**	**Jan 17, 2019**
Test/Reference	LOR	Unit				
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	-	-
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	-	-
TRH C15-C28 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	-	-
TRH C29-C36 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	-	-
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	-	-
Chloride	1	mg/L	12	7.9	-	-
Cyanide (total)	0.005	mg/L	0.019	0.017	-	-
Ferrous Iron - Fe2+	0.05	mg/L	0.05	< 0.05	-	-
Nitrate (as N)	0.02	mg/L	3.1	1.9	-	-
Sulphate (as SO4)	5	mg/L	47	12	-	-
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	30	44	-	-
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	-	-
Alkali Metals						
Calcium	0.5	mg/L	3.2	13	-	-
Magnesium	0.5	mg/L	5.4	6.7	-	-
Potassium	0.5	mg/L	3.4	2.7	-	-
Sodium	0.5	mg/L	24	12	-	-
Heavy Metals						
Arsenic	0.001	mg/L	-	-	-	< 0.001
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Cadmium	0.0002	mg/L	-	-	-	< 0.0002
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	-
Chromium	0.001	mg/L	-	-	-	< 0.001
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Copper	0.001	mg/L	-	-	-	< 0.001
Copper (filtered)	0.001	mg/L	0.002	0.002	0.004	-
Lead	0.001	mg/L	-	-	-	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Manganese (filtered)	0.005	mg/L	6.0	1.8	-	-
Mercury	0.0001	mg/L	-	-	-	< 0.0001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Nickel	0.001	mg/L	-	-	-	< 0.001
Nickel (filtered)	0.001	mg/L	0.009	0.005	0.004	-
Zinc	0.005	mg/L	-	-	-	< 0.005
Zinc (filtered)	0.005	mg/L	0.022	0.010	0.023	-

Client Sample ID			TRIP BLANK	[R20]TRIP SPIKE
Sample Matrix			**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Ja13895**	**S19-Ja13896**
Date Sampled			**Jan 17, 2019**	**Jan 17, 2019**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.01	mg/L	< 0.01	88
TRH C6-C10	0.02	mg/L	< 0.02	71
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	-

Client Sample ID			TRIP BLANK	[R20]TRIP SPIKE
Sample Matrix			**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Ja13895**	**S19-Ja13896**
Date Sampled			**Jan 17, 2019**	**Jan 17, 2019**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	0.02	mg/L	< 0.02	71
BTEX				
Benzene	0.001	mg/L	< 0.001	100
Toluene	0.001	mg/L	< 0.001	96
Ethylbenzene	0.001	mg/L	< 0.001	99
m&p-Xylenes	0.002	mg/L	< 0.002	98
o-Xylene	0.001	mg/L	< 0.001	97
Xylenes - Total	0.003	mg/L	< 0.003	97
4-Bromofluorobenzene (surr.)	1	%	90	106

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

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 - 2013 NEPM Fractions	Melbourne	Jan 23, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Melbourne	Jan 23, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jan 23, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Jan 23, 2019	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Eurofins | mgt Suite B7A (filtered metals)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jan 23, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Jan 23, 2019	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Melbourne	Jan 23, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Jan 23, 2019	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8 filtered	Melbourne	Jan 23, 2019	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins | mgt Suite B15			
Organochlorine Pesticides	Melbourne	Jan 23, 2019	7 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Melbourne	Jan 23, 2019	7 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Melbourne	Jan 23, 2019	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
TRH - 2013 NEPM Fractions (after silica gel clean-up)	Melbourne	Jan 23, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
TRH - 1999 NEPM Fractions (after silica gel clean-up)	Melbourne	Jan 23, 2019	7 Day
- Method: TRH C6-C36 (Silica Gel Cleanup) - MGT 100A			
Major Cations			
Ammonia (as N)	Melbourne	Jan 23, 2019	28 Day
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Alkali Metals	Melbourne	Jan 23, 2019	180 Day
- Method: LTM-MET-3010 Alkali Metals S Si and P by ICP-AES			
Major Anions			
Chloride	Melbourne	Jan 23, 2019	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Nitrate (as N)	Melbourne	Jan 23, 2019	28 Day
- Method: APHA 4500-NO3 Nitrate Nitrogen by FIA			
Sulphate (as SO4)	Melbourne	Jan 23, 2019	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Jan 23, 2019	14 Day
- Method: APHA 2320 Alkalinity by Titration			
Cyanide (total)	Melbourne	Jan 23, 2019	14 Day
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Ferrous Iron - Fe2+	Melbourne	Jan 23, 2019	7 Days
- Method: LTM-INO-4190 Ferrous Iron in Water by Discrete Analyser			
Metals M8	Melbourne	Jan 23, 2019	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

Description	Testing Site	Extracted	Holding Time
Heavy Metals (filtered)	Melbourne	Jan 23, 2019	180 Day

- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS

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Project Name: CENTRAL
Project ID: 21-27234

Order No.:
Report #: 636542
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Jan 18, 2019 4:48 PM
Due: Jan 25, 2019
Priority: 5 Day
Contact Name: Henry Luo

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	Metals M8	Eurofins | mgt Suite B15	Major Anions	Major Cations	TRH (after Silica Gel cleanup)	Eurofins | mgt Suite B7 (filtered metals)	Eurofins | mgt Suite B7A (filtered metals)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																
Brisbane Laboratory - NATA Site # 20794																
Perth Laboratory - NATA Site # 23736																
External Laboratory																
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
1	SRT_BH047	Jan 17, 2019		Water	S19-Ja13887	X	X	X		X	X	X	X		X	
2	SRT_BH052	Jan 17, 2019		Water	S19-Ja13888	X	X	X		X	X	X	X		X	
3	SRT_BH059	Jan 18, 2019		Water	S19-Ja13889	X	X	X		X	X	X	X		X	
4	SRT_BH063	Jan 17, 2019		Water	S19-Ja13890	X	X	X		X	X	X	X		X	
5	SRT_CBH015	Jan 18, 2019		Water	S19-Ja13891	X	X	X		X	X	X	X		X	
6	SRT_CBH017	Jan 18, 2019		Water	S19-Ja13892	X	X	X		X	X	X	X		X	
7	QA01	Jan 17, 2019		Water	S19-Ja13893									X		
8	RB01	Jan 17, 2019		Water	S19-Ja13894				X							
9	TRIP BLANK	Jan 17, 2019		Water	S19-Ja13895											X

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Sample Detail						Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	Metals M8	Eurofins | mgt Suite B15	Major Anions	Major Cations	TRH (after Silica Gel cleanup)	Eurofins | mgt Suite B7 (filtered metals)	Eurofins | mgt Suite B7A (filtered metals)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																
Brisbane Laboratory - NATA Site # 20794																
Perth Laboratory - NATA Site # 23736																
10	TRIP SPIKE	Jan 17, 2019		Water	S19-Ja13896											X
Test Counts						6	6	6	1	6	6	6	6	1	6	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure, April 2011 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. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.2 2018
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.2 where no positive PFAS results have been reported have been reviewed and no data was affected.

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
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							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.001			0.001	Pass	
4.4'-DDD	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDE	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDT	mg/L	< 0.0001			0.0001	Pass	
a-BHC	mg/L	< 0.0001			0.0001	Pass	
Aldrin	mg/L	< 0.0001			0.0001	Pass	
b-BHC	mg/L	< 0.0001			0.0001	Pass	
d-BHC	mg/L	< 0.0001			0.0001	Pass	
Dieldrin	mg/L	< 0.0001			0.0001	Pass	
Endosulfan I	mg/L	< 0.0001			0.0001	Pass	
Endosulfan II	mg/L	< 0.0001			0.0001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/L	< 0.0001			0.0001	Pass	
Endrin	mg/L	< 0.0001			0.0001	Pass	
Endrin aldehyde	mg/L	< 0.0001			0.0001	Pass	
Endrin ketone	mg/L	< 0.0001			0.0001	Pass	
g-BHC (Lindane)	mg/L	< 0.0001			0.0001	Pass	
Heptachlor	mg/L	< 0.0001			0.0001	Pass	
Heptachlor epoxide	mg/L	< 0.0001			0.0001	Pass	
Hexachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
Methoxychlor	mg/L	< 0.0001			0.0001	Pass	
Toxaphene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/L	< 0.002			0.002	Pass	
Bolstar	mg/L	< 0.002			0.002	Pass	
Chlorfenvinphos	mg/L	< 0.002			0.002	Pass	
Chlorpyrifos	mg/L	< 0.02			0.02	Pass	
Chlorpyrifos-methyl	mg/L	< 0.002			0.002	Pass	
Coumaphos	mg/L	< 0.02			0.02	Pass	
Demeton-S	mg/L	< 0.02			0.02	Pass	
Demeton-O	mg/L	< 0.002			0.002	Pass	
Diazinon	mg/L	< 0.002			0.002	Pass	
Dichlorvos	mg/L	< 0.002			0.002	Pass	
Dimethoate	mg/L	< 0.002			0.002	Pass	
Disulfoton	mg/L	< 0.002			0.002	Pass	
EPN	mg/L	< 0.002			0.002	Pass	
Ethion	mg/L	< 0.002			0.002	Pass	
Ethoprop	mg/L	< 0.002			0.002	Pass	
Ethyl parathion	mg/L	< 0.002			0.002	Pass	
Fenitrothion	mg/L	< 0.002			0.002	Pass	
Fensulfothion	mg/L	< 0.002			0.002	Pass	
Fenthion	mg/L	< 0.002			0.002	Pass	
Malathion	mg/L	< 0.002			0.002	Pass	
Merphos	mg/L	< 0.002			0.002	Pass	
Methyl parathion	mg/L	< 0.002			0.002	Pass	
Mevinphos	mg/L	< 0.002			0.002	Pass	
Monocrotophos	mg/L	< 0.002			0.002	Pass	
Naled	mg/L	< 0.002			0.002	Pass	
Omethoate	mg/L	< 0.002			0.002	Pass	
Phorate	mg/L	< 0.002			0.002	Pass	
Pirimiphos-methyl	mg/L	< 0.02			0.02	Pass	
Pyrazophos	mg/L	< 0.002			0.002	Pass	
Ronnel	mg/L	< 0.002			0.002	Pass	
Terbufos	mg/L	< 0.002			0.002	Pass	
Tetrachlorvinphos	mg/L	< 0.002			0.002	Pass	
Tokuthion	mg/L	< 0.002			0.002	Pass	
Trichloronate	mg/L	< 0.002			0.002	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/L	< 0.001			0.001	Pass	
Aroclor-1221	mg/L	< 0.001			0.001	Pass	
Aroclor-1232	mg/L	< 0.001			0.001	Pass	
Aroclor-1242	mg/L	< 0.001			0.001	Pass	
Aroclor-1248	mg/L	< 0.001			0.001	Pass	
Aroclor-1254	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1260	mg/L	< 0.001			0.001	Pass	
Total PCB*	mg/L	< 0.001			0.001	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4.5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.4.6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/L	< 0.1			0.1	Pass	
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2.4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Method Blank							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
Method Blank							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	mg/L	< 0.05			0.05	Pass	
TRH C15-C28 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
TRH C29-C36 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chloride	mg/L	< 1			1	Pass	
Ferrous Iron - Fe2+	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Sulphate (as SO4)	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO3)	mg/L	< 10			10	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	94			70-130	Pass	
TRH C6-C10	%	106			70-130	Pass	
TRH >C10-C16	%	119			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	104			70-130	Pass	
TRH C10-C14	%	111			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	87			70-130	Pass	
Toluene	%	93			70-130	Pass	
Ethylbenzene	%	89			70-130	Pass	
m&p-Xylenes	%	88			70-130	Pass	
Xylenes - Total	%	88			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	88			70-130	Pass	
Acenaphthylene	%	91			70-130	Pass	
Anthracene	%	76			70-130	Pass	
Benz(a)anthracene	%	72			70-130	Pass	
Benzo(a)pyrene	%	72			70-130	Pass	
Benzo(b&j)fluoranthene	%	86			70-130	Pass	
Benzo(g.h.i)perylene	%	80			70-130	Pass	
Benzo(k)fluoranthene	%	77			70-130	Pass	
Chrysene	%	108			70-130	Pass	
Dibenz(a.h)anthracene	%	79			70-130	Pass	
Fluoranthene	%	94			70-130	Pass	
Fluorene	%	96			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	73			70-130	Pass	
Naphthalene	%	89			70-130	Pass	
Phenanthrene	%	91			70-130	Pass	
Pyrene	%	94			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	100			70-130	Pass	
4.4'-DDD	%	103			70-130	Pass	
4.4'-DDE	%	122			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDT	%	83			70-130	Pass	
a-BHC	%	97			70-130	Pass	
Aldrin	%	107			70-130	Pass	
b-BHC	%	115			70-130	Pass	
d-BHC	%	109			70-130	Pass	
Dieldrin	%	97			70-130	Pass	
Endosulfan I	%	116			70-130	Pass	
Endosulfan II	%	116			70-130	Pass	
Endosulfan sulphate	%	84			70-130	Pass	
Endrin	%	103			70-130	Pass	
Endrin aldehyde	%	103			70-130	Pass	
Endrin ketone	%	93			70-130	Pass	
g-BHC (Lindane)	%	112			70-130	Pass	
Heptachlor	%	97			70-130	Pass	
Heptachlor epoxide	%	90			70-130	Pass	
Hexachlorobenzene	%	103			70-130	Pass	
Methoxychlor	%	83			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	77			70-130	Pass	
Dimethoate	%	73			70-130	Pass	
Ethion	%	86			70-130	Pass	
Fenitrothion	%	75			70-130	Pass	
Methyl parathion	%	78			70-130	Pass	
Mevinphos	%	76			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	87			30-130	Pass	
2.4-Dichlorophenol	%	89			30-130	Pass	
2.4.5-Trichlorophenol	%	97			30-130	Pass	
2.4.6-Trichlorophenol	%	96			30-130	Pass	
2.6-Dichlorophenol	%	102			30-130	Pass	
4-Chloro-3-methylphenol	%	85			30-130	Pass	
Pentachlorophenol	%	92			30-130	Pass	
Tetrachlorophenols - Total	%	101			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	70			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	89			30-130	Pass	
2-Methylphenol (o-Cresol)	%	73			30-130	Pass	
2-Nitrophenol	%	103			30-130	Pass	
2.4-Dimethylphenol	%	92			30-130	Pass	
2.4-Dinitrophenol	%	73			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	71			30-130	Pass	
4-Nitrophenol	%	32			30-130	Pass	
Dinoseb	%	90			30-130	Pass	
Phenol	%	34			30-130	Pass	
LCS - % Recovery							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	%	101			70-130	Pass	
LCS - % Recovery							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	%	93			70-130	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ammonia (as N)	%	100			70-130	Pass	
Chloride	%	114			70-130	Pass	
Cyanide (total)	%	91			70-130	Pass	
Ferrous Iron - Fe2+	%	104			70-130	Pass	
Nitrate (as N)	%	101			70-130	Pass	
Sulphate (as SO4)	%	107			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	%	93			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	112			70-130	Pass	
Magnesium	%	109			70-130	Pass	
Potassium	%	94			70-130	Pass	
Sodium	%	112			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	107			80-120	Pass	
Arsenic (filtered)	%	107			80-120	Pass	
Cadmium	%	100			80-120	Pass	
Cadmium (filtered)	%	100			80-120	Pass	
Chromium	%	99			80-120	Pass	
Chromium (filtered)	%	99			80-120	Pass	
Copper	%	104			80-120	Pass	
Copper (filtered)	%	104			80-120	Pass	
Lead	%	100			80-120	Pass	
Lead (filtered)	%	100			80-120	Pass	
Manganese (filtered)	%	115			80-120	Pass	
Mercury	%	93			75-125	Pass	
Mercury (filtered)	%	93			70-130	Pass	
Nickel	%	105			80-120	Pass	
Nickel (filtered)	%	105			80-120	Pass	
Zinc	%	108			80-120	Pass	
Zinc (filtered)	%	108			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	P19-Ja15410	NCP	%	108			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	P19-Ja15410	NCP	%	100			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	P19-Ja13766	NCP	%	121			70-130	Pass	
Acenaphthylene	P19-Ja13766	NCP	%	103			70-130	Pass	
Anthracene	P19-Ja13766	NCP	%	96			70-130	Pass	
Benz(a)anthracene	P19-Ja13766	NCP	%	93			70-130	Pass	
Benzo(a)pyrene	P19-Ja13766	NCP	%	70			70-130	Pass	
Benzo(b&j)fluoranthene	P19-Ja13766	NCP	%	87			70-130	Pass	
Benzo(g.h.i)perylene	P19-Ja13766	NCP	%	78			70-130	Pass	
Benzo(k)fluoranthene	P19-Ja13766	NCP	%	97			70-130	Pass	
Chrysene	P19-Ja13766	NCP	%	100			70-130	Pass	
Dibenz(a.h)anthracene	P19-Ja13766	NCP	%	107			70-130	Pass	
Fluoranthene	P19-Ja13766	NCP	%	84			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluorene	P19-Ja13766	NCP	%	99			70-130	Pass	
Indeno(1.2.3-cd)pyrene	P19-Ja13766	NCP	%	73			70-130	Pass	
Naphthalene	P19-Ja13766	NCP	%	101			70-130	Pass	
Phenanthrene	P19-Ja13766	NCP	%	105			70-130	Pass	
Pyrene	P19-Ja13766	NCP	%	84			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M19-Ja10715	NCP	%	73			30-130	Pass	
2.4-Dichlorophenol	M19-Ja10715	NCP	%	70			30-130	Pass	
2.4.5-Trichlorophenol	M19-Ja10715	NCP	%	61			30-130	Pass	
2.4.6-Trichlorophenol	M19-Ja10715	NCP	%	66			30-130	Pass	
2.6-Dichlorophenol	M19-Ja10715	NCP	%	64			30-130	Pass	
4-Chloro-3-methylphenol	M19-Ja10715	NCP	%	71			30-130	Pass	
Pentachlorophenol	M19-Ja10715	NCP	%	47			30-130	Pass	
Tetrachlorophenols - Total	M19-Ja10715	NCP	%	61			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M19-Ja10715	NCP	%	36			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M19-Ja10715	NCP	%	85			30-130	Pass	
2-Methylphenol (o-Cresol)	M19-Ja10715	NCP	%	67			30-130	Pass	
2-Nitrophenol	M19-Ja10715	NCP	%	70			30-130	Pass	
2.4-Dimethylphenol	M19-Ja10715	NCP	%	70			30-130	Pass	
2.4-Dinitrophenol	M19-Ja10715	NCP	%	37			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Ja10715	NCP	%	65			30-130	Pass	
4-Nitrophenol	M19-Ja10715	NCP	%	36			30-130	Pass	
Dinoseb	M19-Ja10715	NCP	%	72			30-130	Pass	
Phenol	M19-Ja10715	NCP	%	46			30-130	Pass	
Spike - % Recovery									
TRH - 2013 NEPM Fractions (after silica gel clean-up)				Result 1					
TRH >C10-C16 (after silica gel clean-up)	M19-Ja01472	NCP	%	80			70-130	Pass	
Spike - % Recovery									
TRH - 1999 NEPM Fractions (after silica gel clean-up)				Result 1					
TRH C10-C14 (after silica gel clean-up)	M19-Ja01472	NCP	%	96			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M19-Ja12224	NCP	%	96			70-130	Pass	
Chloride	M19-Ja14591	NCP	%	106			70-130	Pass	
Nitrate (as N)	M19-Ja14500	NCP	%	102			70-130	Pass	
Sulphate (as SO4)	M19-Ja18507	NCP	%	112			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S19-Ja13889	CP	%	94			70-130	Pass	
Cadmium (filtered)	S19-Ja13889	CP	%	87			70-130	Pass	
Chromium (filtered)	S19-Ja13889	CP	%	85			70-130	Pass	
Copper (filtered)	S19-Ja13889	CP	%	92			70-130	Pass	
Lead (filtered)	S19-Ja13889	CP	%	86			70-130	Pass	
Manganese (filtered)	S19-Ja13889	CP	%	101			70-130	Pass	
Mercury (filtered)	S19-Ja13889	CP	%	89			70-130	Pass	
Nickel (filtered)	S19-Ja13889	CP	%	89			70-130	Pass	
Zinc (filtered)	S19-Ja13889	CP	%	94			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	S19-Ja13892	CP	%	100			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Magnesium	S19-Ja13892	CP	%	101			70-130	Pass	
Potassium	S19-Ja13892	CP	%	91			70-130	Pass	
Sodium	S19-Ja13892	CP	%	102			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M19-Ja14822	NCP	%	97			75-125	Pass	
Cadmium	M19-Ja14822	NCP	%	91			75-125	Pass	
Chromium	S19-Ja16842	NCP	%	93			75-125	Pass	
Copper	M19-Ja14822	NCP	%	93			75-125	Pass	
Lead	M19-Ja14822	NCP	%	90			75-125	Pass	
Mercury	M19-Ja14822	NCP	%	101			70-130	Pass	
Nickel	M19-Ja14822	NCP	%	94			75-125	Pass	
Zinc	M19-Ja14822	NCP	%	93			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S19-Ja13895	CP	%	99			70-130	Pass	
TRH C6-C10	S19-Ja13895	CP	%	115			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S19-Ja13895	CP	%	116			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S19-Ja13895	CP	%	92			70-130	Pass	
Toluene	S19-Ja13895	CP	%	105			70-130	Pass	
Ethylbenzene	S19-Ja13895	CP	%	104			70-130	Pass	
m&p-Xylenes	S19-Ja13895	CP	%	99			70-130	Pass	
o-Xylene	S19-Ja13895	CP	%	101			70-130	Pass	
Xylenes - Total	S19-Ja13895	CP	%	100			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M19-Ja14675	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	M19-Ja14675	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	S19-Ja13012	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M19-Ja14675	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	S19-Ja13012	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S19-Ja13012	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S19-Ja13012	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M19-Ja14675	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	M19-Ja14675	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	M19-Ja14675	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M19-Ja14675	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	M19-Ja14675	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	M19-Ja14675	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	P19-Ja13765	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	P19-Ja13765	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	P19-Ja13765	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	P19-Ja13765	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Benzo(a)pyrene	P19-Ja13765	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	P19-Ja13765	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	P19-Ja13765	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	P19-Ja13765	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	P19-Ja13765	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	P19-Ja13765	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	P19-Ja13765	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	P19-Ja13765	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	P19-Ja13765	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	P19-Ja13765	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	P19-Ja13765	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	P19-Ja13765	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M19-Ja09554	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4.4'-DDD	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDE	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDT	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
a-BHC	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Aldrin	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
b-BHC	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
d-BHC	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Dieldrin	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan I	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan II	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan sulphate	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin aldehyde	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin ketone	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
g-BHC (Lindane)	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor epoxide	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Hexachlorobenzene	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Methoxychlor	M19-Ja09554	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Bolstar	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorfenvinphos	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorpyrifos	M19-Ja09554	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Chlorpyrifos-methyl	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Coumaphos	M19-Ja09554	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-S	M19-Ja09554	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-O	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Diazinon	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dichlorvos	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dimethoate	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Disulfoton	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
EPN	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethion	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethoprop	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethyl parathion	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenitrothion	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fensulfothion	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Fenthion	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Malathion	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Merphos	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methyl parathion	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Mevinphos	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Monocrotophos	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Naled	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Omethoate	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Phorate	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Pirimiphos-methyl	M19-Ja09554	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Pyrazophos	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ronnel	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Terbufos	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tetrachlorvinphos	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tokuthion	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Trichloronate	M19-Ja09554	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	P19-Ja13765	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dichlorophenol	P19-Ja13765	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4.5-Trichlorophenol	P19-Ja13765	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	P19-Ja13765	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	P19-Ja13765	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
4-Chloro-3-methylphenol	P19-Ja13765	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Pentachlorophenol	P19-Ja13765	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Tetrachlorophenols - Total	P19-Ja13765	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	P19-Ja13765	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	P19-Ja13765	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Methylphenol (o-Cresol)	P19-Ja13765	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Nitrophenol	P19-Ja13765	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dimethylphenol	P19-Ja13765	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	P19-Ja13765	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	P19-Ja13765	NCP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
4-Nitrophenol	P19-Ja13765	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Dinoseb	P19-Ja13765	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Phenol	P19-Ja13765	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M19-Ja17134	NCP	mg/L	77	77	<1	30%	Pass	
Ferrous Iron - Fe2+	B19-Ja12986	NCP	mg/L	1.2	1.2	<1	30%	Pass	
Nitrate (as N)	M19-Ja17134	NCP	mg/L	< 0.4	< 0.4	<1	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M19-Ja14500	NCP	mg/L	39	41	5.0	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M19-Ja14500	NCP	mg/L	< 10	< 10	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S19-Ja13889	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	S19-Ja13889	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S19-Ja13889	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S19-Ja13889	CP	mg/L	0.040	0.040	<1	30%	Pass	
Lead (filtered)	S19-Ja13889	CP	mg/L	0.002	0.002	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Manganese (filtered)	S19-Ja13889	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Mercury (filtered)	S19-Ja13889	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S19-Ja13889	CP	mg/L	0.007	0.007	1.0	30%	Pass	
Zinc (filtered)	S19-Ja13889	CP	mg/L	0.054	0.054	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	S19-Ja13892	CP	mg/L	7.9	8.0	1.0	30%	Pass	
Sulphate (as SO4)	S19-Ja13892	CP	mg/L	12	11	4.0	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	S19-Ja13892	CP	mg/L	13	13	2.0	30%	Pass	
Magnesium	S19-Ja13892	CP	mg/L	6.7	6.8	2.0	30%	Pass	
Potassium	S19-Ja13892	CP	mg/L	2.7	2.8	1.0	30%	Pass	
Sodium	S19-Ja13892	CP	mg/L	12	12	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M19-Ja14822	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	M19-Ja14822	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M19-Ja14822	NCP	mg/L	1.9	2.0	1.0	30%	Pass	
Copper	M19-Ja14822	NCP	mg/L	0.002	0.003	6.0	30%	Pass	
Lead	M19-Ja14822	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	M19-Ja14822	NCP	mg/L	0.0002	0.0002	15	30%	Pass	
Nickel	M19-Ja14822	NCP	mg/L	0.003	0.003	1.0	30%	Pass	
Zinc	M19-Ja14822	NCP	mg/L	0.015	0.016	5.0	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
R20	This sample is a Trip Spike and therefore all results are reported as a percentage

Authorised By

Nibha Vaidya	Analytical Services Manager
Joseph Edouard	Senior Analyst-Organic (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Emily Rosenberg	Senior Analyst-Metal (VIC)
Julie Kay	Senior Analyst-Inorganic (VIC)



Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

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

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eurofins | mgt

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd, Sydney	**Contact Name :** Terry Nham	**Purchase Order :**	**COC Number :**
Office Address :	**Project Manager :** Henry Luo	**PROJECT Number :** 21-27234	**Eurofins | mgt quote ID :** GHD Rates 2018
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results :** terry.nham@ghd.com henry.luo@ghd.com	**PROJECT Name :** Central	**Data output format:** ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	TRH, BTEX, PAH, 8 Metals, Phenols (Suite B7A)	OCP, OPP, PCB (Suite B15)	TRH (with Silica Gel Cleanup)	Cyanide	Ammonia	Major Anions and Cations	TRH C6-C10 / BTEX	8 Metals	TRH, BTEX, PAH, 8 Metals (B7)	Ferrous Iron	Manganese
1	SRT_BH047	20/2/19	Water	X	X	X	X	X	X				X	X
2	SRT_BH052			X	X	X	X	X	X				X	X
3	SRT_BH059			X	X	X	X	X	X				X	X
4	SRT_CBH015			X	X	X	X	X	X				X	X
5	SRT_CBH017	↓		X	X	X	X	X	X				X	X
6	SRT_BH063	21/2/19		X	X	X	X	X	X				X	X
7	QA01	20/2/19		Please send to ALS with attached COC								X		
8	QA02	21/2/19									X			
9	RB01	20/2/19								X				
10	Trip Blank	20/2/19								X				
11	Trip Spike	20/2/19	↓											
12														
13														
14														
15														
16														

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

	500P	250P	60P	1LA	40mL vial	200mL A	Jar	Bag	Sample comments:
1	1		4		2	2			
2	1		4		2	2			
3	1		4		2	2			
4	1		4		2	2			
5	1		4		2	2			
6	1		4		2	2			
7	1		4		2	2			
8	1		4		2	2			
9			1						
10					2				
11					2				

Laboratory Staff

Relinquished By: Terry Nham - GHD
Date & Time : 21/2/2019
Signature:

Received By: Suzanne Ford
Date & Time : 21/2/19 10:28AM
Signature:

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐
5 DAY ☑ 10 DAY ☐ Other:

Method Of Shipment

☐ Courier
☑ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival: 11.23°C

Report number: 641720

GHD Pty Ltd NSW
Level 15, 133 Castlereagh Street
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Henry Luo**

Report **641720-W**
Project name CENTRAL
Project ID 21-27234
Received Date Feb 21, 2019

Client Sample ID			**SRT_BH047**	**SRT_BH052**	**SRT_BH059**	**SRT_CBH015**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Fe27668**	**S19-Fe27669**	**S19-Fe27670**	**S19-Fe27671**
Date Sampled			**Feb 20, 2019**	**Feb 20, 2019**	**Feb 20, 2019**	**Feb 20, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	0.43	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	0.43	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	1.4	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	0.3	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	2.13	< 0.1	< 0.1	< 0.1
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	0.14	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	1.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	0.7	< 0.1	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	1.94	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	99	108	103	97
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			SRT_BH047	SRT_BH052	SRT_BH059	SRT_CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Fe27668	S19-Fe27669	S19-Fe27670	S19-Fe27671
Date Sampled			Feb 20, 2019	Feb 20, 2019	Feb 20, 2019	Feb 20, 2019
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	80	72	83	82
p-Terphenyl-d14 (surr.)	1	%	105	94	116	103
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4.4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
4.4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Toxaphene	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	74	63	85	77
Tetrachloro-m-xylene (surr.)	1	%	102	96	111	104
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			SRT_BH047	SRT_BH052	SRT_BH059	SRT_CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Fe27668	S19-Fe27669	S19-Fe27670	S19-Fe27671
Date Sampled			Feb 20, 2019	Feb 20, 2019	Feb 20, 2019	Feb 20, 2019
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	126	112	135	125
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	74	63	85	77
Tetrachloro-m-xylene (surr.)	1	%	102	96	111	104
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003

Client Sample ID			SRT_BH047	SRT_BH052	SRT_BH059	SRT_CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Fe27668	S19-Fe27669	S19-Fe27670	S19-Fe27671
Date Sampled			Feb 20, 2019	Feb 20, 2019	Feb 20, 2019	Feb 20, 2019
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	95	76	112	93
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Chloride	1	mg/L	26	42	11	13
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.05	mg/L	< 0.05	< 0.05	< 0.05	0.05
Nitrate (as N)	0.02	mg/L	19	6.2	2.5	3.0
Sulphate (as SO4)	5	mg/L	12	28	12	49
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	100	130	170	30
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	61	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	26	14	69	2.5
Magnesium	0.5	mg/L	6.6	3.6	7.7	4.4
Potassium	0.5	mg/L	1.3	1.6	6.7	3.1
Sodium	0.5	mg/L	53	60	14	23
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.018	0.006	< 0.001	0.001
Lead (filtered)	0.001	mg/L	0.002	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.008	0.006	< 0.005	6.6
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.002	< 0.001	< 0.001	0.010
Zinc (filtered)	0.005	mg/L	0.013	0.006	< 0.005	0.023

Client Sample ID			SRT_CBH017	SRT_CBH063	QA01	RB01
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Fe27672	S19-Fe27673	S19-Fe27674	S19-Fe27675
Date Sampled			Feb 20, 2019	Feb 21, 2019	Feb 20, 2019	Feb 20, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
4-Bromofluorobenzene (surr.)	1	%	103	103	104	-
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
2-Fluorobiphenyl (surr.)	1	%	80	83	87	-
p-Terphenyl-d14 (surr.)	1	%	99	121	97	-
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	< 0.001	< 0.001	-	-
4.4'-DDD	0.0001	mg/L	< 0.0001	< 0.0001	-	-
4.4'-DDE	0.0001	mg/L	< 0.0001	< 0.0001	-	-
4.4'-DDT	0.0001	mg/L	< 0.0001	< 0.0001	-	-
a-BHC	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	-	-

Client Sample ID			SRT_CBH017	SRT_CBH063	QA01	RB01
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Fe27672	S19-Fe27673	S19-Fe27674	S19-Fe27675
Date Sampled			Feb 20, 2019	Feb 21, 2019	Feb 20, 2019	Feb 20, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
b-BHC	0.0001	mg/L	< 0.0001	< 0.0001	-	-
d-BHC	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Dieldrin	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endosulfan I	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endosulfan II	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endosulfan sulphate	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endrin	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endrin aldehyde	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Endrin ketone	0.0001	mg/L	< 0.0001	< 0.0001	-	-
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Heptachlor	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Heptachlor epoxide	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Hexachlorobenzene	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Methoxychlor	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Toxaphene	0.01	mg/L	< 0.01	< 0.01	-	-
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	-	-
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001	< 0.001	-	-
Dibutylchlorendate (surr.)	1	%	73	88	-	-
Tetrachloro-m-xylene (surr.)	1	%	103	118	-	-
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	-	-
Bolstar	0.002	mg/L	< 0.002	< 0.002	-	-
Chlorfenvinphos	0.002	mg/L	< 0.002	< 0.002	-	-
Chlorpyrifos	0.02	mg/L	< 0.02	< 0.02	-	-
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	-	-
Coumaphos	0.02	mg/L	< 0.02	< 0.02	-	-
Demeton-S	0.02	mg/L	< 0.02	< 0.02	-	-
Demeton-O	0.002	mg/L	< 0.002	< 0.002	-	-
Diazinon	0.002	mg/L	< 0.002	< 0.002	-	-
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	-	-
Dimethoate	0.002	mg/L	< 0.002	< 0.002	-	-
Disulfoton	0.002	mg/L	< 0.002	< 0.002	-	-
EPN	0.002	mg/L	< 0.002	< 0.002	-	-
Ethion	0.002	mg/L	< 0.002	< 0.002	-	-
Ethoprop	0.002	mg/L	< 0.002	< 0.002	-	-
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	-	-
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	-	-
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	-	-
Fenthion	0.002	mg/L	< 0.002	< 0.002	-	-
Malathion	0.002	mg/L	< 0.002	< 0.002	-	-
Merphos	0.002	mg/L	< 0.002	< 0.002	-	-
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	-	-
Mevinphos	0.002	mg/L	< 0.002	< 0.002	-	-
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	-	-
Naled	0.002	mg/L	< 0.002	< 0.002	-	-
Omethoate	0.002	mg/L	< 0.002	< 0.002	-	-
Phorate	0.002	mg/L	< 0.002	< 0.002	-	-

Client Sample ID			SRT_CBH017	SRT_CBH063	QA01	RB01
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Fe27672	S19-Fe27673	S19-Fe27674	S19-Fe27675
Date Sampled			Feb 20, 2019	Feb 21, 2019	Feb 20, 2019	Feb 20, 2019
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	-	-
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	-	-
Ronnel	0.002	mg/L	< 0.002	< 0.002	-	-
Terbufos	0.002	mg/L	< 0.002	< 0.002	-	-
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	-	-
Tokuthion	0.002	mg/L	< 0.002	< 0.002	-	-
Trichloronate	0.002	mg/L	< 0.002	< 0.002	-	-
Triphenylphosphate (surr.)	1	%	121	138	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1232	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1242	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1248	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1254	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1260	0.001	mg/L	< 0.001	< 0.001	-	-
Total PCB*	0.001	mg/L	< 0.001	< 0.001	-	-
Dibutylchlorendate (surr.)	1	%	73	88	-	-
Tetrachloro-m-xylene (surr.)	1	%	103	118	-	-
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	-	-
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	-	-
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	-	-
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	-	-
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	-	-
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	-	-
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	-	-
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	-	-
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	-	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	-	-
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	-	-
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	-	-
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	-	-
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	-	-
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	-	-
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	-	-
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	-	-
Dinoseb	0.1	mg/L	< 0.1	< 0.1	-	-
Phenol	0.003	mg/L	< 0.003	< 0.003	-	-
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	-	-
Phenol-d6 (surr.)	1	%	116	63	-	-
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	-	-
TRH >C16-C34 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	-	-
TRH >C34-C40 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	-	-

Client Sample ID			SRT_CBH017	SRT_CBH063	QA01	RB01
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Fe27672**	**S19-Fe27673**	**S19-Fe27674**	**S19-Fe27675**
Date Sampled			**Feb 20, 2019**	**Feb 21, 2019**	**Feb 20, 2019**	**Feb 20, 2019**
Test/Reference	LOR	Unit				
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	-	-
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	-	-
TRH C15-C28 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	-	-
TRH C29-C36 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	-	-
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	-	-
Chloride	1	mg/L	15	71	-	-
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	-	-
Ferrous Iron - Fe2+	0.05	mg/L	< 0.05	0.05	-	-
Nitrate (as N)	0.02	mg/L	3.1	0.13	-	-
Sulphate (as SO4)	5	mg/L	16	61	-	-
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	32	250	-	-
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	-	-
Alkali Metals						
Calcium	0.5	mg/L	8.7	51	-	-
Magnesium	0.5	mg/L	5.0	33	-	-
Potassium	0.5	mg/L	2.7	5.8	-	-
Sodium	0.5	mg/L	9.6	73	-	-
Heavy Metals						
Arsenic	0.001	mg/L	-	-	-	< 0.001
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Cadmium	0.0002	mg/L	-	-	-	< 0.0002
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	-
Chromium	0.001	mg/L	-	-	-	< 0.001
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	0.002	-
Copper	0.001	mg/L	-	-	-	< 0.001
Copper (filtered)	0.001	mg/L	0.032	0.029	< 0.001	-
Lead	0.001	mg/L	-	-	-	< 0.001
Lead (filtered)	0.001	mg/L	0.002	0.002	< 0.001	-
Manganese (filtered)	0.005	mg/L	1.00	0.009	-	-
Mercury	0.0001	mg/L	-	-	-	< 0.0001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Nickel	0.001	mg/L	-	-	-	< 0.001
Nickel (filtered)	0.001	mg/L	0.010	0.010	0.010	-
Zinc	0.005	mg/L	-	-	-	< 0.005
Zinc (filtered)	0.005	mg/L	0.033	0.034	0.023	-

Client Sample ID			TRIP BLANK	[R20]TRIP SPIKE
Sample Matrix			**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Fe27676**	**S19-Fe27677**
Date Sampled			**Feb 20, 2019**	**Feb 20, 2019**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.01	mg/L	< 0.01	110
TRH C6-C10	0.02	mg/L	< 0.02	75
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	-

Client Sample ID			TRIP BLANK	[R20]TRIP SPIKE
Sample Matrix			**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Fe27676**	**S19-Fe27677**
Date Sampled			**Feb 20, 2019**	**Feb 20, 2019**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	0.02	mg/L	< 0.02	76
BTEX				
Benzene	0.001	mg/L	< 0.001	100
Toluene	0.001	mg/L	< 0.001	99
Ethylbenzene	0.001	mg/L	< 0.001	100
m&p-Xylenes	0.002	mg/L	< 0.002	96
o-Xylene	0.001	mg/L	< 0.001	97
Xylenes - Total	0.003	mg/L	< 0.003	96
4-Bromofluorobenzene (surr.)	1	%	97	97

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

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 - 2013 NEPM Fractions	Melbourne	Feb 22, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Melbourne	Feb 22, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Feb 26, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Feb 22, 2019	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Eurofins | mgt Suite B7A (filtered metals)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 26, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Feb 26, 2019	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Melbourne	Feb 26, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Feb 26, 2019	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8 filtered	Melbourne	Feb 22, 2019	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins | mgt Suite B15			
Organochlorine Pesticides	Melbourne	Feb 26, 2019	7 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Melbourne	Feb 26, 2019	7 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Melbourne	Feb 26, 2019	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
TRH - 2013 NEPM Fractions (after silica gel clean-up)	Melbourne	Feb 26, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
TRH - 1999 NEPM Fractions (after silica gel clean-up)	Melbourne	Feb 26, 2019	7 Day
- Method: TRH C6-C36 (Silica Gel Cleanup) - MGT 100A			
Major Cations			
Ammonia (as N)	Melbourne	Feb 22, 2019	28 Day
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Alkali Metals	Melbourne	Feb 22, 2019	180 Day
- Method: LTM-MET-3010 Alkali Metals S Si and P by ICP-AES			
Major Anions			
Chloride	Melbourne	Feb 22, 2019	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Nitrate (as N)	Melbourne	Feb 22, 2019	28 Day
- Method: APHA 4500-NO3 Nitrate Nitrogen by FIA			
Sulphate (as SO4)	Melbourne	Feb 22, 2019	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Feb 22, 2019	14 Day
- Method: APHA 2320 Alkalinity by Titration			
Cyanide (total)	Melbourne	Feb 22, 2019	14 Day
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Ferrous Iron - Fe2+	Melbourne	Feb 22, 2019	7 Days
- Method: LTM-INO-4190 Ferrous Iron in Water by Discrete Analyser			
Metals M8	Melbourne	Feb 22, 2019	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

Description	Testing Site	Extracted	Holding Time
Heavy Metals (filtered)	Melbourne	Feb 22, 2019	180 Day

- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS

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NATA # 1261
Site # 23736

Company Name: GHD Pty Ltd NSW
Address: Level 15, 133 Castlereagh Street
Sydney
NSW 2000

Project Name: CENTRAL
Project ID: 21-27234

Order No.:
Report #: 641720
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Feb 21, 2019 10:28 AM
Due: Feb 28, 2019
Priority: 5 Day
Contact Name: Henry Luo

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	Metals M8	Eurofins | mgt Suite B15	Major Anions	Major Cations	TRH (after Silica Gel cleanup)	Eurofins | mgt Suite B7 (filtered metals)	Eurofins | mgt Suite B7A (filtered metals)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																
Brisbane Laboratory - NATA Site # 20794																
Perth Laboratory - NATA Site # 23736																
External Laboratory																
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
1	SRT_BH047	Feb 20, 2019		Water	S19-Fe27668	X	X	X		X	X	X	X		X	
2	SRT_BH052	Feb 20, 2019		Water	S19-Fe27669	X	X	X		X	X	X	X		X	
3	SRT_BH059	Feb 20, 2019		Water	S19-Fe27670	X	X	X		X	X	X	X		X	
4	SRT_CBH015	Feb 20, 2019		Water	S19-Fe27671	X	X	X		X	X	X	X		X	
5	SRT_CBH017	Feb 20, 2019		Water	S19-Fe27672	X	X	X		X	X	X	X		X	
6	SRT_CBH063	Feb 21, 2019		Water	S19-Fe27673	X	X	X		X	X	X	X		X	
7	QA01	Feb 20, 2019		Water	S19-Fe27674									X		
8	RB01	Feb 20, 2019		Water	S19-Fe27675				X							
9	TRIP BLANK	Feb 20, 2019		Water	S19-Fe27676											X

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Received: Feb 21, 2019 10:28 AM
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Contact Name: Henry Luo

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	Metals M8	Eurofins | mgt Suite B15	Major Anions	Major Cations	TRH (after Silica Gel cleanup)	Eurofins | mgt Suite B7 (filtered metals)	Eurofins | mgt Suite B7A (filtered metals)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																
Brisbane Laboratory - NATA Site # 20794																
Perth Laboratory - NATA Site # 23736																
10	TRIP SPIKE	Feb 20, 2019		Water	S19-Fe27677											X
Test Counts						6	6	6	1	6	6	6	6	1	6	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure, April 2011 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. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.2 2018
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.2 where no positive PFAS results have been reported have been reviewed and no data was affected.

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

QC Data General Comments

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

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Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
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							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.001			0.001	Pass	
4.4'-DDD	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDE	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDT	mg/L	< 0.0001			0.0001	Pass	
a-BHC	mg/L	< 0.0001			0.0001	Pass	
Aldrin	mg/L	< 0.0001			0.0001	Pass	
b-BHC	mg/L	< 0.0001			0.0001	Pass	
d-BHC	mg/L	< 0.0001			0.0001	Pass	
Dieldrin	mg/L	< 0.0001			0.0001	Pass	
Endosulfan I	mg/L	< 0.0001			0.0001	Pass	
Endosulfan II	mg/L	< 0.0001			0.0001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/L	< 0.0001			0.0001	Pass	
Endrin	mg/L	< 0.0001			0.0001	Pass	
Endrin aldehyde	mg/L	< 0.0001			0.0001	Pass	
Endrin ketone	mg/L	< 0.0001			0.0001	Pass	
g-BHC (Lindane)	mg/L	< 0.0001			0.0001	Pass	
Heptachlor	mg/L	< 0.0001			0.0001	Pass	
Heptachlor epoxide	mg/L	< 0.0001			0.0001	Pass	
Hexachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
Methoxychlor	mg/L	< 0.0001			0.0001	Pass	
Toxaphene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/L	< 0.002			0.002	Pass	
Bolstar	mg/L	< 0.002			0.002	Pass	
Chlorfenvinphos	mg/L	< 0.002			0.002	Pass	
Chlorpyrifos	mg/L	< 0.02			0.02	Pass	
Chlorpyrifos-methyl	mg/L	< 0.002			0.002	Pass	
Coumaphos	mg/L	< 0.02			0.02	Pass	
Demeton-S	mg/L	< 0.02			0.02	Pass	
Demeton-O	mg/L	< 0.002			0.002	Pass	
Diazinon	mg/L	< 0.002			0.002	Pass	
Dichlorvos	mg/L	< 0.002			0.002	Pass	
Dimethoate	mg/L	< 0.002			0.002	Pass	
Disulfoton	mg/L	< 0.002			0.002	Pass	
EPN	mg/L	< 0.002			0.002	Pass	
Ethion	mg/L	< 0.002			0.002	Pass	
Ethoprop	mg/L	< 0.002			0.002	Pass	
Ethyl parathion	mg/L	< 0.002			0.002	Pass	
Fenitrothion	mg/L	< 0.002			0.002	Pass	
Fensulfothion	mg/L	< 0.002			0.002	Pass	
Fenthion	mg/L	< 0.002			0.002	Pass	
Malathion	mg/L	< 0.002			0.002	Pass	
Merphos	mg/L	< 0.002			0.002	Pass	
Methyl parathion	mg/L	< 0.002			0.002	Pass	
Mevinphos	mg/L	< 0.002			0.002	Pass	
Monocrotophos	mg/L	< 0.002			0.002	Pass	
Naled	mg/L	< 0.002			0.002	Pass	
Omethoate	mg/L	< 0.002			0.002	Pass	
Phorate	mg/L	< 0.002			0.002	Pass	
Pirimiphos-methyl	mg/L	< 0.02			0.02	Pass	
Pyrazophos	mg/L	< 0.002			0.002	Pass	
Ronnel	mg/L	< 0.002			0.002	Pass	
Terbufos	mg/L	< 0.002			0.002	Pass	
Tetrachlorvinphos	mg/L	< 0.002			0.002	Pass	
Tokuthion	mg/L	< 0.002			0.002	Pass	
Trichloronate	mg/L	< 0.002			0.002	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/L	< 0.001			0.001	Pass	
Aroclor-1221	mg/L	< 0.001			0.001	Pass	
Aroclor-1232	mg/L	< 0.001			0.001	Pass	
Aroclor-1242	mg/L	< 0.001			0.001	Pass	
Aroclor-1248	mg/L	< 0.001			0.001	Pass	
Aroclor-1254	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1260	mg/L	< 0.001			0.001	Pass	
Total PCB*	mg/L	< 0.001			0.001	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4.5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.4.6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/L	< 0.1			0.1	Pass	
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2.4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Method Blank							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
Method Blank							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	mg/L	< 0.05			0.05	Pass	
TRH C15-C28 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
TRH C29-C36 (after silica gel clean-up)	mg/L	< 0.1			0.1	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chloride	mg/L	< 1			1	Pass	
Cyanide (total)	mg/L	< 0.005			0.005	Pass	
Ferrous Iron - Fe2+	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Sulphate (as SO4)	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Carbonate Alkalinity (as CaCO3)	mg/L	< 10			10	Pass	
Method Blank							
Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Manganese (filtered)	mg/L	< 0.005			0.005	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	105			70-130	Pass	
TRH C6-C10	%	121			70-130	Pass	
TRH >C10-C16	%	116			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	122			70-130	Pass	
TRH C10-C14	%	117			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	109			70-130	Pass	
Toluene	%	100			70-130	Pass	
Ethylbenzene	%	119			70-130	Pass	
m&p-Xylenes	%	100			70-130	Pass	
Xylenes - Total	%	103			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	121			70-130	Pass	
Acenaphthylene	%	116			70-130	Pass	
Anthracene	%	91			70-130	Pass	
Benz(a)anthracene	%	89			70-130	Pass	
Benzo(a)pyrene	%	101			70-130	Pass	
Benzo(b&j)fluoranthene	%	100			70-130	Pass	
Benzo(g.h.i)perylene	%	92			70-130	Pass	
Benzo(k)fluoranthene	%	76			70-130	Pass	
Chrysene	%	113			70-130	Pass	
Dibenz(a.h)anthracene	%	83			70-130	Pass	
Fluoranthene	%	73			70-130	Pass	
Fluorene	%	100			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	89			70-130	Pass	
Naphthalene	%	92			70-130	Pass	
Phenanthrene	%	76			70-130	Pass	
Pyrene	%	75			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	99			70-130	Pass	
4.4'-DDD	%	74			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDE	%	79			70-130	Pass	
4.4'-DDT	%	73			70-130	Pass	
a-BHC	%	117			70-130	Pass	
Aldrin	%	77			70-130	Pass	
b-BHC	%	89			70-130	Pass	
d-BHC	%	91			70-130	Pass	
Dieldrin	%	83			70-130	Pass	
Endosulfan I	%	81			70-130	Pass	
Endosulfan II	%	90			70-130	Pass	
Endosulfan sulphate	%	104			70-130	Pass	
Endrin	%	102			70-130	Pass	
Endrin aldehyde	%	107			70-130	Pass	
Endrin ketone	%	101			70-130	Pass	
g-BHC (Lindane)	%	96			70-130	Pass	
Heptachlor	%	100			70-130	Pass	
Heptachlor epoxide	%	108			70-130	Pass	
Hexachlorobenzene	%	118			70-130	Pass	
Methoxychlor	%	72			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	90			70-130	Pass	
Dimethoate	%	74			70-130	Pass	
Fenitrothion	%	86			70-130	Pass	
Methyl parathion	%	84			70-130	Pass	
Mevinphos	%	78			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	109			30-130	Pass	
2.4-Dichlorophenol	%	89			30-130	Pass	
2.4.5-Trichlorophenol	%	91			30-130	Pass	
2.4.6-Trichlorophenol	%	92			30-130	Pass	
2.6-Dichlorophenol	%	93			30-130	Pass	
4-Chloro-3-methylphenol	%	93			30-130	Pass	
Pentachlorophenol	%	111			30-130	Pass	
Tetrachlorophenols - Total	%	96			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	64			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	93			30-130	Pass	
2-Methylphenol (o-Cresol)	%	98			30-130	Pass	
2-Nitrophenol	%	93			30-130	Pass	
2.4-Dimethylphenol	%	77			30-130	Pass	
2.4-Dinitrophenol	%	64			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	114			30-130	Pass	
4-Nitrophenol	%	75			30-130	Pass	
Dinoseb	%	90			30-130	Pass	
Phenol	%	69			30-130	Pass	
LCS - % Recovery							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	%	116			70-130	Pass	
LCS - % Recovery							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	%	117			70-130	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ammonia (as N)	%	100			70-130	Pass	
Chloride	%	111			70-130	Pass	
Cyanide (total)	%	84			70-130	Pass	
Ferrous Iron - Fe2+	%	94			70-130	Pass	
Nitrate (as N)	%	96			70-130	Pass	
Sulphate (as SO4)	%	110			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Bicarbonate Alkalinity (as CaCO3)	%	86			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	92			70-130	Pass	
Magnesium	%	91			70-130	Pass	
Potassium	%	90			70-130	Pass	
Sodium	%	86			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	87			80-120	Pass	
Arsenic (filtered)	%	87			80-120	Pass	
Cadmium	%	88			80-120	Pass	
Cadmium (filtered)	%	88			80-120	Pass	
Chromium	%	88			80-120	Pass	
Chromium (filtered)	%	88			80-120	Pass	
Copper	%	87			80-120	Pass	
Copper (filtered)	%	87			80-120	Pass	
Lead	%	90			80-120	Pass	
Lead (filtered)	%	90			80-120	Pass	
Manganese (filtered)	%	86			80-120	Pass	
Mercury	%	89			75-125	Pass	
Mercury (filtered)	%	89			70-130	Pass	
Nickel	%	86			80-120	Pass	
Nickel (filtered)	%	86			80-120	Pass	
Zinc	%	87			80-120	Pass	
Zinc (filtered)	%	87			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M19-Fe27944	NCP	%	122			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	M19-Fe27944	NCP	%	119			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	N19-Fe27257	NCP	%	89			70-130	Pass	
Acenaphthylene	N19-Fe27257	NCP	%	89			70-130	Pass	
Anthracene	N19-Fe27257	NCP	%	72			70-130	Pass	
Benz(a)anthracene	N19-Fe27257	NCP	%	101			70-130	Pass	
Benzo(a)pyrene	N19-Fe27257	NCP	%	84			70-130	Pass	
Benzo(b&j)fluoranthene	N19-Fe27257	NCP	%	83			70-130	Pass	
Benzo(g.h.i)perylene	N19-Fe27257	NCP	%	90			70-130	Pass	
Benzo(k)fluoranthene	N19-Fe27257	NCP	%	85			70-130	Pass	
Chrysene	N19-Fe27257	NCP	%	110			70-130	Pass	
Dibenz(a.h)anthracene	N19-Fe27257	NCP	%	85			70-130	Pass	
Fluoranthene	N19-Fe27257	NCP	%	84			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluorene	N19-Fe27257	NCP	%	76			70-130	Pass	
Indeno(1.2.3-cd)pyrene	N19-Fe27257	NCP	%	75			70-130	Pass	
Naphthalene	N19-Fe27257	NCP	%	103			70-130	Pass	
Phenanthrene	N19-Fe27257	NCP	%	82			70-130	Pass	
Pyrene	N19-Fe27257	NCP	%	86			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	N19-Fe27257	NCP	%	70			30-130	Pass	
2.4-Dichlorophenol	N19-Fe27257	NCP	%	59			30-130	Pass	
2.4.5-Trichlorophenol	N19-Fe27257	NCP	%	61			30-130	Pass	
2.4.6-Trichlorophenol	N19-Fe27257	NCP	%	54			30-130	Pass	
2.6-Dichlorophenol	N19-Fe27257	NCP	%	55			30-130	Pass	
4-Chloro-3-methylphenol	N19-Fe27257	NCP	%	59			30-130	Pass	
Pentachlorophenol	N19-Fe27257	NCP	%	58			30-130	Pass	
Tetrachlorophenols - Total	N19-Fe27257	NCP	%	59			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	N19-Fe27257	NCP	%	61			30-130	Pass	
2-Methyl-4.6-dinitrophenol	N19-Fe27257	NCP	%	43			30-130	Pass	
2-Methylphenol (o-Cresol)	N19-Fe27257	NCP	%	67			30-130	Pass	
2-Nitrophenol	N19-Fe27257	NCP	%	59			30-130	Pass	
2.4-Dimethylphenol	N19-Fe27257	NCP	%	58			30-130	Pass	
2.4-Dinitrophenol	M19-Fe18132	NCP	%	111			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	N19-Fe27257	NCP	%	76			30-130	Pass	
4-Nitrophenol	M19-Fe18132	NCP	%	54			30-130	Pass	
Dinoseb	N19-Fe27257	NCP	%	65			30-130	Pass	
Phenol	N19-Fe27257	NCP	%	48			30-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M19-Fe29949	NCP	%	106			70-130	Pass	
Chloride	M19-Fe26500	NCP	%	113			70-130	Pass	
Cyanide (total)	S19-Fe27782	NCP	%	116			70-130	Pass	
Nitrate (as N)	M19-Fe29949	NCP	%	100			70-130	Pass	
Sulphate (as SO4)	M19-Fe26872	NCP	%	98			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	S19-Fe27670	CP	%	110			70-130	Pass	
Magnesium	S19-Fe27670	CP	%	106			70-130	Pass	
Potassium	S19-Fe27670	CP	%	111			70-130	Pass	
Sodium	S19-Fe27670	CP	%	116			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S19-Fe27670	CP	%	98			70-130	Pass	
Cadmium (filtered)	S19-Fe27670	CP	%	95			70-130	Pass	
Chromium (filtered)	S19-Fe27670	CP	%	98			70-130	Pass	
Copper (filtered)	S19-Fe27670	CP	%	95			70-130	Pass	
Lead (filtered)	S19-Fe27670	CP	%	96			70-130	Pass	
Manganese (filtered)	S19-Fe27670	CP	%	95			70-130	Pass	
Mercury (filtered)	S19-Fe27670	CP	%	94			70-130	Pass	
Nickel (filtered)	S19-Fe27670	CP	%	94			70-130	Pass	
Zinc (filtered)	S19-Fe27670	CP	%	98			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S19-Fe27673	CP	%	102			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDD	S19-Fe27673	CP	%	103			70-130	Pass	
4.4'-DDE	S19-Fe27673	CP	%	77			70-130	Pass	
4.4'-DDT	S19-Fe27673	CP	%	75			70-130	Pass	
a-BHC	S19-Fe27673	CP	%	107			70-130	Pass	
Aldrin	S19-Fe27673	CP	%	78			70-130	Pass	
b-BHC	S19-Fe27673	CP	%	102			70-130	Pass	
d-BHC	S19-Fe27673	CP	%	76			70-130	Pass	
Dieldrin	S19-Fe27673	CP	%	76			70-130	Pass	
Endosulfan I	S19-Fe27673	CP	%	79			70-130	Pass	
Endosulfan II	S19-Fe27673	CP	%	82			70-130	Pass	
Endosulfan sulphate	S19-Fe27673	CP	%	71			70-130	Pass	
Endrin	S19-Fe27673	CP	%	94			70-130	Pass	
Endrin aldehyde	S19-Fe27673	CP	%	85			70-130	Pass	
Endrin ketone	S19-Fe27673	CP	%	101			70-130	Pass	
g-BHC (Lindane)	S19-Fe27673	CP	%	79			70-130	Pass	
Heptachlor	S19-Fe27673	CP	%	86			70-130	Pass	
Heptachlor epoxide	S19-Fe27673	CP	%	73			70-130	Pass	
Hexachlorobenzene	S19-Fe27673	CP	%	122			70-130	Pass	
Methoxychlor	S19-Fe27673	CP	%	86			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M19-Fe27452	NCP	%	113			75-125	Pass	
Cadmium	M19-Fe27452	NCP	%	111			75-125	Pass	
Chromium	M19-Fe27452	NCP	%	113			75-125	Pass	
Copper	M19-Fe27452	NCP	%	105			75-125	Pass	
Lead	M19-Fe27452	NCP	%	109			75-125	Pass	
Mercury	M19-Fe27452	NCP	%	97			70-130	Pass	
Nickel	M19-Fe27452	NCP	%	105			75-125	Pass	
Zinc	M19-Fe27452	NCP	%	112			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M19-Fe29949	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Chloride	M19-Fe27470	NCP	mg/L	1200	1200	2.0	30%	Pass	
Cyanide (total)	S19-Fe27782	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Ferrous Iron - Fe2+	S19-Fe27668	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Nitrate (as N)	M19-Fe29949	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Sulphate (as SO4)	M19-Fe27470	NCP	mg/L	29	30	2.0	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M19-Fe29414	NCP	mg/L	280	260	7.0	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M19-Fe29414	NCP	mg/L	11	21	62	30%	Fail	Q15
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	S19-Fe27670	CP	mg/L	69	66	4.0	30%	Pass	
Magnesium	S19-Fe27670	CP	mg/L	7.7	7.4	4.0	30%	Pass	
Potassium	S19-Fe27670	CP	mg/L	6.7	6.7	<1	30%	Pass	
Sodium	S19-Fe27670	CP	mg/L	14	13	3.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S19-Fe27670	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	S19-Fe27670	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S19-Fe27670	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S19-Fe27670	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Lead (filtered)	S19-Fe27670	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	S19-Fe27670	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Mercury (filtered)	S19-Fe27670	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S19-Fe27670	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc (filtered)	S19-Fe27670	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S19-Fe27672	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	S19-Fe27672	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	S19-Fe27672	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	S19-Fe27672	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	S19-Fe27672	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	S19-Fe27672	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	S19-Fe27672	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	S19-Fe27672	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	S19-Fe27672	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	S19-Fe27672	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	S19-Fe27672	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	S19-Fe27672	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S19-Fe27672	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	S19-Fe27672	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	S19-Fe27672	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	S19-Fe27672	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S19-Fe27672	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4.4'-DDD	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDE	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDT	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
a-BHC	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Aldrin	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
b-BHC	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
d-BHC	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Dieldrin	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan I	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan II	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan sulphate	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin aldehyde	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin ketone	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
g-BHC (Lindane)	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor epoxide	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Hexachlorobenzene	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Methoxychlor	S19-Fe27672	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Bolstar	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorfenvinphos	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorpyrifos	S19-Fe27672	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Chlorpyrifos-methyl	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Coumaphos	S19-Fe27672	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-S	S19-Fe27672	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Demeton-O	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Diazinon	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dichlorvos	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dimethoate	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Disulfoton	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
EPN	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethion	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethoprop	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethyl parathion	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenitrothion	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fensulfothion	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenthion	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Malathion	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Merphos	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methyl parathion	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Mevinphos	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Monocrotophos	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Naled	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Omethoate	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Phorate	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Pirimiphos-methyl	S19-Fe27672	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Pyrazophos	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ronnel	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Terbufos	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tetrachlorvinphos	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tokuthion	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Trichloronate	S19-Fe27672	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S19-Fe27672	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dichlorophenol	S19-Fe27672	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4.5-Trichlorophenol	S19-Fe27672	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	S19-Fe27672	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	S19-Fe27672	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
4-Chloro-3-methylphenol	S19-Fe27672	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Pentachlorophenol	S19-Fe27672	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Tetrachlorophenols - Total	S19-Fe27672	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S19-Fe27672	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S19-Fe27672	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S19-Fe27672	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Nitrophenol	S19-Fe27672	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dimethylphenol	S19-Fe27672	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	S19-Fe27672	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S19-Fe27672	CP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
4-Nitrophenol	S19-Fe27672	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Dinoseb	S19-Fe27672	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Phenol	S19-Fe27672	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	M19-Fe25228	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M19-Fe25228	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M19-Fe25228	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	M19-Fe25228	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M19-Fe25228	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M19-Fe25228	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M19-Fe27452	NCP	mg/L	0.004	0.004	1.0	30%	Pass	
Cadmium	M19-Fe27452	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M19-Fe27452	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	M19-Fe27452	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	M19-Fe27452	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	M19-Fe27452	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	M19-Fe27452	NCP	mg/L	0.041	0.041	1.0	30%	Pass	
Zinc	M19-Fe27452	NCP	mg/L	0.27	0.27	<1	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.
R20	This sample is a Trip Spike and therefore all results are reported as a percentage

Authorised By

Nibha Vaidya	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Julie Kay	Senior Analyst-Inorganic (VIC)



Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

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

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ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1826658**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Brenda Hong
Address	: LEVEL 15, 133 CASTLEREAGH STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9239 7100	Telephone	: (02) 8784 8504
Project	: 2127234	Date Samples Received	: 10-Sep-2018 13:10
Order number	:	Date Analysis Commenced	: 11-Sep-2018
C-O-C number	: ----	Issue Date	: 14-Sep-2018 15:21
Sampler	: TERRY NHAM		
Site	:		
Quote number	: EN/005/18		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

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

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

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

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

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QA2	----	----	----	----
				Client sampling date / time	07-Sep-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1826658-001	--------	--------	--------	--------
					Result	----	----	----	----
EG020F: Dissolved 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		**0.003**	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.014**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.002**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.013**	----	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		**240**	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		**240**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QA2	----	----	----	----
				Client sampling date / time	07-Sep-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1826658-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		**230**	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		**230**	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**16.8**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**40.6**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**41.1**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**89.6**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**93.4**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**96.3**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**116**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**107**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**94.0**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1826658**	Page	: 1 of 7
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Brenda Hong
Address	: LEVEL 15, 133 CASTLEREAGH STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9239 7100	Telephone	: (02) 8784 8504
Project	: 2127234	Date Samples Received	: 10-Sep-2018
Order number	:	Date Analysis Commenced	: 11-Sep-2018
C-O-C number	: ----	Issue Date	: 14-Sep-2018
Sampler	: TERRY NHAM		
Site	:		
Quote number	: EN/005/18		
No. of samples received	: 1		
No. of samples analysed	: 1		

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ISO/IEC 17025 - Testing

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 1928664)									
ES1826778-004	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.007	0.006	17.2	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
ES1826751-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.006	0.005	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 1928665)									
ES1826655-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES1826930-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1924684)									
ES1826717-002	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	<1.0	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1924684) - continued									
ES1826717-002	Anonymous	EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	<1.0	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1924685)									
ES1826717-004	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	180	150	16.6	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
ES1826717-002	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	180	180	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1925725)									
ES1826682-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES1826754-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1924685)									
ES1826717-004	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	180	140	25.6	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
ES1826717-002	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	180	180	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1925725)									
ES1826682-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES1826754-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 1925725)									
ES1826682-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 1925725) - continued									
ES1826754-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1928664)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	90.2	85	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	89.7	84	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	89.4	85	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	86.4	81	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	89.5	83	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	85.0	82	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	85.6	81	117
EG035F: Dissolved Mercury by FIMS (QCLot: 1928665)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	94.2	83	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1924684)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	71.3	50	94
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	98.8	64	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	93.7	62	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	89.1	64	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	96.6	63	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	89.9	64	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	92.0	64	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	94.7	63	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	75.0	64	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	81.9	63	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	79.7	62	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	83.9	63	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	92.4	63	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	85.4	60	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	93.6	61	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	80.4	59	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1924685)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	98.1	76	116
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	99.0	83	109
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	81.0	75	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1925725)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	98.4	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1924685)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1924685) - continued								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	99.2	76	114
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	103	81	111
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	111	77	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1925725)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	101	75	127
EP080: BTEXN (QCLot: 1925725)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	103	70	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	97.7	69	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	89.8	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	86.7	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	91.4	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	97.2	70	120

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1928664)							
ES1826541-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	93.6	70	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	92.6	70	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	93.0	70	130
		EG020A-F: Copper	7440-50-8	1 mg/L	91.7	70	130
		EG020A-F: Lead	7439-92-1	1 mg/L	89.2	70	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	89.2	70	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	96.1	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 1928665)							
ES1826541-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	92.4	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1924684)							
ES1826717-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	86.4	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	82.1	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1924685)							
ES1826717-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	118	74	150
		EP071: C15 - C28 Fraction	----	300 µg/L	104	77	153

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1924685) - continued							
ES1826717-002	Anonymous	EP071: C29 - C36 Fraction	----	200 µg/L	92.1	67	153
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1925725)							
ES1826682-004	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	94.4	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1924685)							
ES1826717-002	Anonymous	EP071: >C10 - C16 Fraction	----	250 µg/L	80.9	74	150
		EP071: >C16 - C34 Fraction	----	350 µg/L	102	77	153
		EP071: >C34 - C40 Fraction	----	150 µg/L	98.0	67	153
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1925725)							
ES1826682-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	96.6	70	130
EP080: BTEXN (QCLot: 1925725)							
ES1826682-004	Anonymous	EP080: Benzene	71-43-2	25 µg/L	101	70	130
		EP080: Toluene	108-88-3	25 µg/L	95.4	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	93.4	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	91.4	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	94.6	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	99.5	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1826658**	Page	: 1 of 4
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Telephone	: (02) 8784 8504
Project	: 2127234	Date Samples Received	: 10-Sep-2018
Site	:	Issue Date	: 14-Sep-2018
Sampler	: TERRY NHAM	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: **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)							
QA2	**07-Sep-2018**	**----**	----	----	**13-Sep-2018**	06-Mar-2019	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
QA2	**07-Sep-2018**	**----**	----	----	**13-Sep-2018**	05-Oct-2018	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QA2	**07-Sep-2018**	**11-Sep-2018**	14-Sep-2018	✓	**13-Sep-2018**	21-Oct-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QA2	**07-Sep-2018**	**11-Sep-2018**	14-Sep-2018	✓	**13-Sep-2018**	21-Oct-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QA2	**07-Sep-2018**	**12-Sep-2018**	21-Sep-2018	✓	**12-Sep-2018**	21-Sep-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QA2	**07-Sep-2018**	**11-Sep-2018**	14-Sep-2018	✓	**13-Sep-2018**	21-Oct-2018	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QA2	**07-Sep-2018**	**12-Sep-2018**	21-Sep-2018	✓	**12-Sep-2018**	21-Sep-2018	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QA2	**07-Sep-2018**	**12-Sep-2018**	21-Sep-2018	✓	**12-Sep-2018**	21-Sep-2018	✓

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	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
☐BRISBANE 32 Shand 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 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: GHD Pty Ltd	TURNAROUND REQUIREMENT ☒ Standard TAT (List due date): 14/9/18	FOR LABORATORY USE ONLY (Circle)
OFFICE: Sydney	(Standard TAT may be longer for some tests e.g., Ultra Trace) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes / No / N/A
PROJECT: 21-27234	ALS QUOTE NO.: EN/005/18	Free ice / frozen ice bricks present upon receipt? Yes / No / N/A
ORDER NUMBER:	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: 11.2 °C
PROJECT MANAGER: Henry Luo CONTACT PH: 02 9239 7044 / 0414 090 002	OF: 1 2 3 4 5 6 7	Other comments:
SAMPLER: Terry Nham SAMPLER MOBILE: 0403 251 883	RELINQUISHED BY:	RECEIVED BY:
COC emailed to ALS? (YES / NO) EDD FORMAT (or default):	Terry Nham (GHD)	Lee D.
Email Reports to: henry.luo@ghd.com terry.nham@ghd.com	DATE/TIME: 7/9/18	DATE/TIME: 07-9-18 4:51PM
Email Invoice to (will default to PM if no other addresses are listed):	RELINQUISHED BY:	RECEIVED BY: Sap M. - ALS Couns Nest
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:	DATE/TIME:	DATE/TIME: 10/9/18 12:55pm
		Rasika 10.9.18 3.00pm

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	TRH / BTEX / PAH / 8 Metals (W-26)
1	QA02	7/9/18	Wate		7	X
				TOTAL		

Environmental Division
Sydney
Work Order Reference
ES1826658
Telephone : +61-2-8784 8555

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; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial 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

CERTIFICATE OF ANALYSIS

Work Order	: **ES1832040**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Brenda Hong
Address	: LEVEL 15, 133 CASTLEREAGH STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9239 7100	Telephone	: +61 2 8784 8555
Project	: 2127234	Date Samples Received	: 29-Oct-2018 12:03
Order number	:	Date Analysis Commenced	: 31-Oct-2018
C-O-C number	: ----	Issue Date	: 02-Nov-2018 16:00
Sampler	: TERRY NHAM		
Site	:		
Quote number	: EN/005/18		
No. of samples received	: 1		
No. of samples analysed	: 1		



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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

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

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

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

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

- EP075(SIM): Particular sample phenolic surrogate not determined due to matrix interferences.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QA02	----	----	----	----
				Client sampling date / time	26-Oct-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1832040-001	--------	--------	--------	--------
					Result	----	----	----	----
EG020F: Dissolved 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		**0.002**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.002**	----	----	----	----
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	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		**210**	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		**210**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QA02	----	----	----	----
				Client sampling date / time	26-Oct-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1832040-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		**220**	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		**220**	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**Not Determined**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**Not Determined**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**Not Determined**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**85.6**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**87.0**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**93.7**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**105**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**112**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**113**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1832040**	Page	: 1 of 7
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Brenda Hong
Address	: LEVEL 15, 133 CASTLEREAGH STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9239 7100	Telephone	: +61 2 8784 8555
Project	: 2127234	Date Samples Received	: 29-Oct-2018
Order number	:	Date Analysis Commenced	: 31-Oct-2018
C-O-C number	: ----	Issue Date	: 02-Nov-2018
Sampler	: TERRY NHAM		
Site	:		
Quote number	: EN/005/18		
No. of samples received	: 1		
No. of samples analysed	: 1		

ilac-MRA NATA
Accreditation No. 623
Accredited for compliance with
ISO/IEC 17025 - Testing

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 2010679)									
ES1832040-001	QA02	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
ES1832074-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0010	<0.0010	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.010	<0.010	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.010	<0.010	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.010	<0.010	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.010	<0.010	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.010	<0.010	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.050	<0.050	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 2010680)									
ES1832074-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES1832054-004	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2008645)									
ES1832111-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<4.7	<4.7	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	1	µg/L	153	158	2.90	0% - 20%
		EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	9.9	10.9	9.59	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<4.7	<4.7	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	1	µg/L	5.3	5.7	7.86	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<4.7	<4.7	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2008645) - continued									
ES1832111-001	Anonymous	EP075(SIM): Anthracene	120-12-7	1	µg/L	<4.7	<4.7	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<4.7	<4.7	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	1	µg/L	<4.7	<4.7	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<4.7	<4.7	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	1	µg/L	<4.7	<4.7	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<4.7	<4.7	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<4.7	<4.7	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<4.7	<4.7	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<4.7	<4.7	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<4.7	<4.7	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2008646)									
ES1832054-004	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
ES1832111-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	740	880	17.2	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	3080	3610	16.0	0% - 20%
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2009746)									
ES1832054-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES1832098-013	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2008646)									
ES1832054-004	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
ES1832111-001	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	3060	3580	15.8	0% - 20%
		EP071: >C16 - C34 Fraction	----	100	µg/L	520	600	13.9	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2009746)									
ES1832054-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES1832098-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2009746)									
ES1832054-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 2009746) - continued									
ES1832098-013	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2010679)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	91.8	85	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.5	84	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.0	85	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	89.8	81	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	89.9	83	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	91.1	82	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	91.6	81	117
EG035F: Dissolved Mercury by FIMS (QCLot: 2010680)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	89.1	83	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2008645)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	71.6	50	94
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	80.3	64	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	81.0	62	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	80.8	64	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	85.0	63	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	89.2	64	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	88.2	64	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	91.1	63	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	74.7	64	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	77.4	63	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	76.0	62	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	78.8	63	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	81.8	63	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	87.4	60	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	88.6	61	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	82.1	59	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2008646)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	87.5	76	116
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	104	83	109
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	97.0	75	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2009746)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	83.9	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2008646)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2008646) - continued								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	105	76	114
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	92.1	81	111
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	102	77	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2009746)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	83.7	75	127
EP080: BTEXN (QCLot: 2009746)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	85.1	70	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	92.8	69	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	98.0	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	96.2	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	96.2	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	82.2	70	120

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2010679)							
ES1832054-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	118	70	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	127	70	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	130	70	130
		EG020A-F: Copper	7440-50-8	1 mg/L	126	70	130
		EG020A-F: Lead	7439-92-1	1 mg/L	126	70	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	125	70	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	124	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 2010680)							
ES1832040-001	QA02	EG035F: Mercury	7439-97-6	0.01 mg/L	84.8	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2008645)							
ES1832111-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	72.8	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	90.2	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2008646)							
ES1832111-001	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	# Not Determined	74	150

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2008646) - continued							
ES1832111-001	Anonymous	EP071: C15 - C28 Fraction	----	300 µg/L	108	77	153
		EP071: C29 - C36 Fraction	----	200 µg/L	89.8	67	153
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2009746)							
ES1832054-004	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	92.8	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2008646)							
ES1832111-001	Anonymous	EP071: >C10 - C16 Fraction	----	250 µg/L	# Not Determined	74	150
		EP071: >C16 - C34 Fraction	----	350 µg/L	101	77	153
		EP071: >C34 - C40 Fraction	----	150 µg/L	110	67	153
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2009746)							
ES1832054-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	91.0	70	130
EP080: BTEXN (QCLot: 2009746)							
ES1832054-004	Anonymous	EP080: Benzene	71-43-2	25 µg/L	84.0	70	130
		EP080: Toluene	108-88-3	25 µg/L	90.3	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	98.3	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	98.0	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	101	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	86.0	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1832040**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Telephone	: +61 2 8784 8555
Project	: 2127234	Date Samples Received	: 29-Oct-2018
Site	:	Issue Date	: 02-Nov-2018
Sampler	: TERRY NHAM	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.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **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
Matrix Spike (MS) Recoveries							
EP080/071: Total Petroleum Hydrocarbons	ES1832111--001	Anonymous	**C10 - C14 Fraction**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	ES1832111--001	Anonymous	**>C10 - C16 Fraction**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

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)							
QA02	**26-Oct-2018**	**----**	----	----	**31-Oct-2018**	24-Apr-2019	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
QA02	**26-Oct-2018**	**----**	----	----	**31-Oct-2018**	23-Nov-2018	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QA02	**26-Oct-2018**	**31-Oct-2018**	02-Nov-2018	✓	**01-Nov-2018**	10-Dec-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QA02	**26-Oct-2018**	**31-Oct-2018**	02-Nov-2018	✓	**01-Nov-2018**	10-Dec-2018	✓
Amber VOC Vial - HCl (EP080)							
QA02	**26-Oct-2018**	**01-Nov-2018**	09-Nov-2018	✓	**01-Nov-2018**	09-Nov-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QA02	**26-Oct-2018**	**31-Oct-2018**	02-Nov-2018	✓	**01-Nov-2018**	10-Dec-2018	✓
Amber VOC Vial - HCl (EP080)							
QA02	**26-Oct-2018**	**01-Nov-2018**	09-Nov-2018	✓	**01-Nov-2018**	09-Nov-2018	✓

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 - HCl (EP080)							
QA02	**26-Oct-2018**	**01-Nov-2018**	09-Nov-2018	✓	**01-Nov-2018**	09-Nov-2018	✓

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	13	**15.38**	**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)	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	13	**7.69**	**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	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	13	**7.69**	**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	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	13	**7.69**	**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	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	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
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

2/11/18

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
☐BRISBANE 32 Shand 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 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 02 4423 2063 E: nowra@alsglobal.com
☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: GHD Pty Ltd	TURNAROUND REQUIREMENT ☒ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: Sydney	(Standard TAT may be longer for some tests e.g. Ultra Trace) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes / No / N/A
PROJECT: 21-27234	ALS QUOTE NO.: EN/005/18	Free ice / frozen ice packs present upon receipt? Yes / No / N/A
ORDER NUMBER:	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: 12.1 °C
PROJECT MANAGER: Henry Luo	CONTACT PH: 02 9239 7044 / 0414 090 002	Other comment:
SAMPLER: Terry Nham	SAMPLER MOBILE: 0403 251 883	
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	
Email Reports to: henry.luo@ghd.com terry.nham@ghd.com		
Email Invoice to (will default to PM if no other addresses are listed):		

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Terry Nham (GHD)	Elvis P		Sep - ALS Crows Nest
DATE/TIME: 26/10/18	DATE/TIME: 26/10/18 4:32pm	DATE/TIME:	DATE/TIME: 29/10/18 12:03pm

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

Rec Soo Hyun ALS - 29/10/18 1500 9.6 - 9.6°C

ALS USE | SAMPLE DETAILS MATRIX: SOLID (S) WATER (W) | CONTAINER INFORMATION | ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price)

Where **Metals** are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required).

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	TRH / BTEX / PAH / 8 Metals (W-26)
1	QA02	26/10/18	Water		8	X
					TOTAL	

Environmental Division
Sydney
Work Order Reference
ES1832040

Telephone : + 61-2-8784 8555

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; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial 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

CERTIFICATE OF ANALYSIS

Work Order	: **ES1835581**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Customer Services ES
Address	: LEVEL 15, 133 CASTLEREAGH STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9239 7100	Telephone	: +61-2-8784 8555
Project	: 2127234	Date Samples Received	: 28-Nov-2018 14:05
Order number	:	Date Analysis Commenced	: 30-Nov-2018
C-O-C number	: ----	Issue Date	: 05-Dec-2018 15:52
Sampler	: Terry Nham		
Site	:		
Quote number	: EN/005/18		
No. of samples received	: 1		
No. of samples analysed	: 1		



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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

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

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

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

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

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QA02	----	----	----	----
				Client sampling date / time	27-Nov-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1835581-001	--------	--------	--------	--------
					Result	----	----	----	----
EG020F: Dissolved 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		**0.002**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.008**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.016**	----	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QA02	----	----	----	----
				Client sampling date / time	27-Nov-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1835581-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**23.4**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**54.7**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**34.4**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**79.4**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**88.5**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**75.1**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**118**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**109**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**106**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: **ES1835581**	Page	: 1 of 6
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Customer Services ES
Address	: LEVEL 15, 133 CASTLEREAGH STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9239 7100	Telephone	: +61-2-8784 8555
Project	: 2127234	Date Samples Received	: 28-Nov-2018
Order number	:	Date Analysis Commenced	: 30-Nov-2018
C-O-C number	: ----	Issue Date	: 05-Dec-2018
Sampler	: Terry Nham		
Site	:		
Quote number	: EN/005/18		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 623
Accredited for compliance with
ISO/IEC 17025 - Testing

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 2070124)									
ES1835652-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.006	0.006	0.00	No Limit
ES1835493-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.010	0.012	27.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 2070125)									
ES1835404-044	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES1835652-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2065824)									
ES1835668-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES1835668-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	40	40	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2065824)									
ES1835668-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES1835668-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	80	80	13.2	No Limit
EP080: BTEXN (QC Lot: 2065824)									

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 2065824) - continued									
ES1835668-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
ES1835668-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	9	10	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	3	4	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	10	11	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	5	5	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	6	6	0.00	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2070124)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	91.5	85	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	90.6	84	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	88.4	85	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	86.1	81	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	88.6	83	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	86.5	82	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	90.4	81	117
EG035F: Dissolved Mercury by FIMS (QCLot: 2070125)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	105	83	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2067132)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	68.3	50	94
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	81.8	64	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	75.8	62	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	82.1	64	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	87.3	63	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	90.8	64	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	103	64	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	103	63	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	92.8	64	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	87.1	63	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	85.2	62	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	102	63	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	97.6	63	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	93.5	60	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	91.7	61	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	86.9	59	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2065824)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	87.8	75	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2067133)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	84.0	76	116
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	96.0	83	109
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	94.4	75	113
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2065824)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2065824) - continued								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	88.2	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2067133)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	92.8	76	114
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	102	81	111
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	95.7	77	119
EP080: BTEXN (QCLot: 2065824)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	95.9	70	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	88.7	69	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	88.8	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	88.5	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	93.1	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	101	70	120

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2070124)							
ES1835404-044	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	86.9	70	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	88.9	70	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	125	70	130
		EG020A-F: Copper	7440-50-8	1 mg/L	113	70	130
		EG020A-F: Lead	7439-92-1	1 mg/L	115	70	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	115	70	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	87.7	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 2070125)							
ES1835404-043	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	86.1	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2065824)							
ES1835668-004	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	118	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2065824)							
ES1835668-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	121	70	130
EP080: BTEXN (QCLot: 2065824)							
ES1835668-004	Anonymous	EP080: Benzene	71-43-2	25 µg/L	112	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 2065824) - continued							
ES1835668-004	Anonymous	EP080: Toluene	108-88-3	25 µg/L	106	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	105	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	103	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	100	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1835581**	Page	: 1 of 4
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Telephone	: +61-2-8784 8555
Project	: 2127234	Date Samples Received	: 28-Nov-2018
Site	:	Issue Date	: 05-Dec-2018
Sampler	: Terry Nham	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

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

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	18	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	18	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation* ***Date extracted***	*Due for extraction*	*Evaluation*	*Analysis* ***Date analysed***	*Due for analysis*	*Evaluation*
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
QA02	**27-Nov-2018**	**----**	----	----	**03-Dec-2018**	26-May-2019	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
QA02	**27-Nov-2018**	**----**	----	----	**04-Dec-2018**	25-Dec-2018	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QA02	**27-Nov-2018**	**30-Nov-2018**	04-Dec-2018	✓	**03-Dec-2018**	09-Jan-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QA02	**27-Nov-2018**	**30-Nov-2018**	04-Dec-2018	✓	**03-Dec-2018**	09-Jan-2019	✓
Clear glass VOC vial - HCl (EP080)							
QA02	**27-Nov-2018**	**30-Nov-2018**	11-Dec-2018	✓	**30-Nov-2018**	11-Dec-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QA02	**27-Nov-2018**	**30-Nov-2018**	04-Dec-2018	✓	**03-Dec-2018**	09-Jan-2019	✓
Clear glass VOC vial - HCl (EP080)							
QA02	**27-Nov-2018**	**30-Nov-2018**	11-Dec-2018	✓	**30-Nov-2018**	11-Dec-2018	✓
EP080: BTEXN							
Clear glass VOC vial - HCl (EP080)							
QA02	**27-Nov-2018**	**30-Nov-2018**	11-Dec-2018	✓	**30-Nov-2018**	11-Dec-2018	✓

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	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	8	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	18	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
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	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
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	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
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	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	8	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	18	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

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☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: GHD Pty Ltd	TURNAROUND REQUIREMENT ☒ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE: Sydney	(Standard TAT may be longer for some tests e.g., Ultra Trace) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact?	Yes / No / N/A
PROJECT: 21-27234	ALS QUOTE NO.: EN/005/18	Free ice / frozen ice bricks present upon receipt?	Yes / No / N/A
ORDER NUMBER:	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt:	9.0 °C
PROJECT MANAGER: Henry Luo	CONTACT PH: 02 9239 7044 / 0414 090 002 OF: 1 2 3 4 5 6 7	Other comment:	
SAMPLER: Terry Nham	SAMPLER MOBILE: 0403 251 883		
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):		
Email Reports to: henry.luo@ghd.com terry.nham@ghd.com			
Email Invoice to (will default to PM if no other addresses are listed):			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Terry Nham (GHD)			Sap-ALS Crows Nest
DATE/TIME: 27/11/18	DATE/TIME: 27/11 12:20PM	DATE/TIME:	DATE/TIME: 27/11/18 1405

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: 28/11/18 JUSTIN 7.45pm

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).														
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	TRH / BTEX / PAH / 8 Metals (W-26)														
1	QA02	27/11/18	Water		7	X														
				TOTAL																

Environmental Division Sydney
Work Order Reference
ES1835581

Telephone : +61-2-8784 8555

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; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial 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

CERTIFICATE OF ANALYSIS

Work Order	: **ES1838345**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Customer Services ES
Address	: LEVEL 15, 133 CASTLEREAGH STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9239 7100	Telephone	: +61-2-8784 8555
Project	: 2127234	Date Samples Received	: 19-Dec-2018 14:00
Order number	:	Date Analysis Commenced	: 21-Dec-2018
C-O-C number	: ----	Issue Date	: 02-Jan-2019 17:06
Sampler	: Terry Nham		
Site	:		
Quote number	: EN/005/18		
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. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

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

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

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

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

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QA02	----	----	----	----
				Client sampling date / time	17-Dec-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1838345-001	--------	--------	--------	--------
					Result	----	----	----	----
EG020F: Dissolved 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		**0.010**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.024**	----	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QA02	----	----	----	----
				Client sampling date / time	17-Dec-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1838345-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**22.2**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**57.0**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**50.5**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**87.2**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**83.4**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**94.4**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**103**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**113**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**108**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1838345**	Page	: 1 of 6
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Customer Services ES
Address	: LEVEL 15, 133 CASTLEREAGH STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9239 7100	Telephone	: +61-2-8784 8555
Project	: 2127234	Date Samples Received	: 19-Dec-2018
Order number	:	Date Analysis Commenced	: 21-Dec-2018
C-O-C number	: ----	Issue Date	: 02-Jan-2019
Sampler	: Terry Nham		
Site	:		
Quote number	: EN/005/18		
No. of samples received	: 1		
No. of samples analysed	: 1		

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Accreditation No. 623
Accredited for compliance with
ISO/IEC 17025 - Testing

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 2115642)									
ES1838739-006	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
ES1838317-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.203	0.202	0.503	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 2115643)									
ES1838345-001	QA02	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES1838803-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2112484)									
ES1838303-021	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES1838303-031	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2112484)									
ES1838303-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES1838303-031	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2112484)									

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 2112484) - continued									
ES1838303-021	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
ES1838303-031	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2115642)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.8	85	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.4	84	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.5	85	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.3	81	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.9	83	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.2	82	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.4	81	117
EG035F: Dissolved Mercury by FIMS (QCLot: 2115643)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	92.1	83	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2109887)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	73.3	50	94
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	97.5	64	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	75.1	62	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	86.4	64	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	98.4	63	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	88.5	64	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	89.8	64	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	98.3	63	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	89.5	64	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	93.5	63	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	94.0	62	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	80.5	63	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	87.0	63	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	92.0	60	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	93.6	61	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	86.6	59	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2109886)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	89.5	76	116
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	106	83	109
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	98.1	75	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2112484)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	91.2	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2109886)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2109886) - continued								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	98.2	76	114
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	103	81	111
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	83.8	77	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2112484)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	93.8	75	127
EP080: BTEXN (QCLot: 2112484)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	100	70	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.6	69	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	106	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	105	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	104	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	97.2	70	120

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2115642)							
ES1838317-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	88.2	70	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	91.9	70	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	91.8	70	130
		EG020A-F: Copper	7440-50-8	1 mg/L	90.5	70	130
		EG020A-F: Lead	7439-92-1	1 mg/L	95.7	70	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	91.4	70	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	90.2	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 2115643)							
ES1838317-003	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	72.4	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2112484)							
ES1838303-021	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	90.2	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2112484)							
ES1838303-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	93.4	70	130
EP080: BTEXN (QCLot: 2112484)							
ES1838303-021	Anonymous	EP080: Benzene	71-43-2	25 µg/L	94.0	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 2112484) - continued							
ES1838303-021	Anonymous	EP080: Toluene	108-88-3	25 µg/L	94.5	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	100	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	97.8	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	98.7	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	92.2	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1838345**	Page	: 1 of 4
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Telephone	: +61-2-8784 8555
Project	: 2127234	Date Samples Received	: 19-Dec-2018
Site	:	Issue Date	: 02-Jan-2019
Sampler	: Terry Nham	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

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

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
QA02	**17-Dec-2018**	**----**	----	----	**27-Dec-2018**	15-Jun-2019	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
QA02	**17-Dec-2018**	**----**	----	----	**28-Dec-2018**	14-Jan-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QA02	**17-Dec-2018**	**21-Dec-2018**	24-Dec-2018	✓	**21-Dec-2018**	30-Jan-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QA02	**17-Dec-2018**	**21-Dec-2018**	24-Dec-2018	✓	**21-Dec-2018**	30-Jan-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QA02	**17-Dec-2018**	**27-Dec-2018**	31-Dec-2018	✓	**27-Dec-2018**	31-Dec-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QA02	**17-Dec-2018**	**21-Dec-2018**	24-Dec-2018	✓	**21-Dec-2018**	30-Jan-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QA02	**17-Dec-2018**	**27-Dec-2018**	31-Dec-2018	✓	**27-Dec-2018**	31-Dec-2018	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QA02	**17-Dec-2018**	**27-Dec-2018**	31-Dec-2018	✓	**27-Dec-2018**	31-Dec-2018	✓

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	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	5	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	5	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

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☐BRISBANE 32 Shand 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
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CLIENT: GHD Pty Ltd	TURNAROUND REQUIREMENT ☒ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: Sydney	(Standard TAT may be longer for some tests e.g., Ultra Trace) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes / No / N/A
PROJECT: 21-27234	ALS QUOTE NO.: EN/005/18	Free ice / frozen ice bricks present upon receipt? Yes / No / N/A
ORDER NUMBER:	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: 5-8 °C
PROJECT MANAGER: Henry Luo CONTACT PH: 02 9239 7044 / 0414 090 002	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Terry Nham SAMPLER MOBILE: 0403 251 883	RELINQUISHED BY:	RECEIVED BY:
COC emailed to ALS? (YES / NO) EDD FORMAT (or default):	Terry Nham (GHD)	DATE/TIME: 18/12/18
Email Reports to: henry.luo@ghd.com terry.nham@ghd.com	DATE/TIME: 18/12/18	RELINQUISHED BY:
Email Invoice to (will default to PM if no other addresses are listed):		DATE/TIME:
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:		RECEIVED BY: Sep-ALS Crows Nest
		DATE/TIME: 19/12/18 1400

Received - manish Rossmoyne 5-8°C 19/12/18 3:30pm

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).											
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	TRH / BTEX / PAH / 8 Metals (W-26)											
	QA02	17/12/18	Water		9	X											
				TOTAL													

Environmental Division Sydney
Work Order Reference
ES1838345

Telephone : + 61-2-8784 8555

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; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial 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

CERTIFICATE OF ANALYSIS

Work Order	: **ES1901871**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Customer Services ES
Address	: LEVEL 15, 133 CASTLEREAGH STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9239 7100	Telephone	: +61-2-8784 8555
Project	: 2127234	Date Samples Received	: 21-Jan-2019 12:23
Order number	:	Date Analysis Commenced	: 23-Jan-2019
C-O-C number	: ----	Issue Date	: 28-Jan-2019 20:12
Sampler	: Terry Nham		
Site	:		
Quote number	: EN/005/18		
No. of samples received	: 1		
No. of samples analysed	: 1		



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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

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

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

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

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

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

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

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QA02	----	----	----	----
				Client sampling date / time	18-Jan-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1901871-001	--------	--------	--------	--------
					Result	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		**0.0002**	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.037**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		**0.004**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.012**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.077**	----	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QA02	----	----	----	----
				Client sampling date / time	18-Jan-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1901871-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**19.5**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**49.2**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**47.7**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**66.4**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**80.8**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**95.9**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**100**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**104**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**86.2**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1901871**	Page	: 1 of 6
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Customer Services ES
Address	: LEVEL 15, 133 CASTLEREAGH STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9239 7100	Telephone	: +61-2-8784 8555
Project	: 2127234	Date Samples Received	: 21-Jan-2019
Order number	:	Date Analysis Commenced	: 23-Jan-2019
C-O-C number	: ----	Issue Date	: 28-Jan-2019
Sampler	: Terry Nham		
Site	:		
Quote number	: EN/005/18		
No. of samples received	: 1		
No. of samples analysed	: 1		

ilac-MRA NATA
Accreditation No. 623
Accredited for compliance with
ISO/IEC 17025 - Testing

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

This Quality Control Report contains the following information:

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

Signatories

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

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

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 2153184)									
ES1901640-009	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
ES1901567-004	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 2153183)									
ES1901574-003	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES1901640-007	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2149308)									
ES1901574-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES1901888-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2149308)									
ES1901574-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES1901888-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2149308)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 2149308) - continued									
ES1901574-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
ES1901888-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2153184)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.7	85	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.5	84	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.4	85	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	94.6	81	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	91.9	83	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.4	82	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	88.8	81	117
EG035F: Dissolved Mercury by FIMS (QCLot: 2153183)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.3	83	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2149313)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	74.6	50	94
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	92.4	64	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	84.3	62	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	88.1	64	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	96.8	63	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	92.7	64	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	95.4	64	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	101	63	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	93.5	64	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	94.1	63	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	91.8	62	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	99.3	63	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	83.3	63	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	84.8	60	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	85.6	61	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	98.3	59	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2149308)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	87.0	75	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2149314)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	97.9	76	116
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	95.7	83	109
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	96.2	75	113
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2149308)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2149308) - continued								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	89.6	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2149314)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	97.4	76	114
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	98.8	81	111
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	98.3	77	119
EP080: BTEXN (QCLot: 2149308)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	92.0	70	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	97.4	69	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	98.5	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	98.7	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	95.4	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	107	70	120

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2153184)							
ES1901574-003	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	91.0	70	130
		EG020A-F: Cadmium	7440-43-9	0.125 mg/L	79.8	70	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	97.8	70	130
		EG020A-F: Copper	7440-50-8	1 mg/L	95.1	70	130
		EG020A-F: Lead	7439-92-1	1 mg/L	110	70	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	96.6	70	130
		EG020A-F: Zinc	7440-66-6	5 mg/L	91.8	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 2153183)							
ES1901567-004	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	99.6	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2149308)							
ES1901574-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	73.2	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2149308)							
ES1901574-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	75.0	70	130
EP080: BTEXN (QCLot: 2149308)							
ES1901574-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	79.3	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 2149308) - continued							
ES1901574-001	Anonymous	EP080: Toluene	108-88-3	25 µg/L	74.6	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	76.6	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	75.0	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	76.1	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	89.7	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1901871**	Page	: 1 of 4
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Telephone	: +61-2-8784 8555
Project	: 2127234	Date Samples Received	: 21-Jan-2019
Site	:	Issue Date	: 28-Jan-2019
Sampler	: Terry Nham	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

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

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

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

Method / ***Container*** / *Client Sample ID(s)*	***Sample Date***	*Extraction / Preparation* ***Date extracted***	*Due for extraction*	*Evaluation*	*Analysis* ***Date analysed***	*Due for analysis*	*Evaluation*
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) QA02	**18-Jan-2019**	**----**	----	----	**24-Jan-2019**	17-Jul-2019	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) QA02	**18-Jan-2019**	**----**	----	----	**24-Jan-2019**	15-Feb-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QA02	**18-Jan-2019**	**23-Jan-2019**	25-Jan-2019	✓	**24-Jan-2019**	04-Mar-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QA02	**18-Jan-2019**	**23-Jan-2019**	25-Jan-2019	✓	**25-Jan-2019**	04-Mar-2019	✓
Clear glass VOC vial - HCl (EP080) QA02	**18-Jan-2019**	**23-Jan-2019**	01-Feb-2019	✓	**23-Jan-2019**	01-Feb-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QA02	**18-Jan-2019**	**23-Jan-2019**	25-Jan-2019	✓	**25-Jan-2019**	04-Mar-2019	✓
Clear glass VOC vial - HCl (EP080) QA02	**18-Jan-2019**	**23-Jan-2019**	01-Feb-2019	✓	**23-Jan-2019**	01-Feb-2019	✓
EP080: BTEXN							
Clear glass VOC vial - HCl (EP080) QA02	**18-Jan-2019**	**23-Jan-2019**	01-Feb-2019	✓	**23-Jan-2019**	01-Feb-2019	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
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	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**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	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**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	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	**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
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
☐BRISBANE 32 Shand 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 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
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☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
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☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: GHD Pty Ltd

OFFICE: Sydney

PROJECT: 21-27234

ORDER NUMBER:

PROJECT MANAGER: Henry Luo

SAMPLER: Terry Nham

COC emailed to ALS? (YES / NO)

Email Reports to: henry.luo@ghd.com terry.nham@ghd.com

Email Invoice to (will default to PM if no other addresses are listed):

TURNAROUND REQUIREMENT ☒ Standard TAT (List due date):

(Standard TAT may be longer for some tests e.g., Ultra Trace) ☐ Non Standard or urgent TAT (List due date):

ALS QUOTE NO.: EN/005/18

CONTACT PH: 02 9239 7044 / 0414 090 002

SAMPLER MOBILE: 0403 251 883

EDD FORMAT (or default):

COC SEQUENCE NUMBER (Circle)

COC: (1) 2 3 4 5 6 7

OF: (1) 2 3 4 5 6 7

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt °C

Other comment:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Terry Nham (GHD)	Suzanne Ford		Sep - ALS Opw & Neat
DATE/TIME: 18/1/2019	DATE/TIME: 18/1/2019 4:50PM	DATE/TIME:	DATE/TIME: 21/1/19 1223pm

21/1/19 Justin 2-30pm 8.0°C

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	TRH / BTEX / PAH / 8 Metals (W-26)
1	QA02	18/1/2019	Water		9	X
				TOTAL		

Environmental Division
Sydney
Work Order Reference
ES1901871

Telephone : +61-2-8784 8555

Water Container Codes: erved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserv A Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial 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 Preserv EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1905610**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Customer Services ES
Address	: LEVEL 15, 133 CASTLEREAGH STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9239 7100	Telephone	: +61-2-8784 8555
Project	: 2127234	Date Samples Received	: 22-Feb-2019 12:55
Order number	:	Date Analysis Commenced	: 25-Feb-2019
C-O-C number	: ----	Issue Date	: 28-Feb-2019 17:14
Sampler	: TERRY NHAM		
Site	:		
Quote number	: EN/005/18		
No. of samples received	: 1		
No. of samples analysed	: 1		



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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

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

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

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

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

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QA02	----	----	----	----
				Client sampling date / time	21-Feb-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1905610-001	--------	--------	--------	--------
					Result	----	----	----	----
EG020F: Dissolved 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		**0.004**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.007**	----	----	----	----
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	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QA02	----	----	----	----
				Client sampling date / time	21-Feb-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1905610-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**27.9**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**70.3**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**69.3**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**79.4**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**92.1**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**92.7**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**104**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**98.8**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**96.7**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

QUALITY CONTROL REPORT

Work Order	: **ES1905610**	Page	: 1 of 7
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Customer Services ES
Address	: LEVEL 15, 133 CASTLEREAGH STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9239 7100	Telephone	: +61-2-8784 8555
Project	: 2127234	Date Samples Received	: 22-Feb-2019
Order number	:	Date Analysis Commenced	: 25-Feb-2019
C-O-C number	: ----	Issue Date	: 28-Feb-2019
Sampler	: TERRY NHAM		
Site	:		
Quote number	: EN/005/18		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 623
Accredited for compliance with
ISO/IEC 17025 - Testing

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 2203442)									
ES1905601-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.797	0.786	1.40	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.440	0.430	2.29	0% - 20%
ES1905625-003	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0003	0.0002	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.009	0.009	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.043	0.042	0.00	0% - 20%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.093	0.090	3.68	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.025	0.027	8.65	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.510	0.500	2.01	0% - 20%
EG035F: Dissolved Mercury by FIMS (QC Lot: 2203443)									
ES1905579-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES1905625-003	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2201952)									
ES1905627-005	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	<1.0	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2201952) - continued									
ES1905627-005	Anonymous	EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	<1.0	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2201951)									
ES1905627-002	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
ES1905627-005	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2202280)									
ES1905444-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES1905499-013	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2201951)									
ES1905627-002	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
ES1905627-005	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2202280)									
ES1905444-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES1905499-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2202280)									
ES1905444-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 2202280) - continued									
ES1905499-013	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2203442)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	93.6	85	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.5	84	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	91.9	85	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	91.5	81	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.1	83	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	93.3	82	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	91.8	81	117
EG035F: Dissolved Mercury by FIMS (QCLot: 2203443)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	90.0	83	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2201952)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	75.3	50	94
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	90.1	64	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	82.0	62	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	83.3	64	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	91.6	63	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	82.6	64	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	89.6	64	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	96.7	63	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	71.9	64	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	73.7	63	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	73.3	62	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	67.2	63	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	72.3	63	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	69.0	60	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	81.4	61	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	84.0	59	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2201951)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	90.1	76	116
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	93.7	83	109
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	80.4	75	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2202280)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	88.7	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2201951)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2201951) - continued								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	86.7	76	114
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	91.1	81	111
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	83.7	77	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2202280)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	89.9	75	127
EP080: BTEXN (QCLot: 2202280)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	96.0	70	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	92.2	69	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	90.2	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	88.8	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	93.2	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	96.6	70	120

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2203442)							
ES1905579-002	Anonymous	EG020A-F: Arsenic	7440-38-2	10 mg/L	98.4	70	130
		EG020A-F: Cadmium	7440-43-9	2.5 mg/L	95.8	70	130
		EG020A-F: Chromium	7440-47-3	10 mg/L	94.0	70	130
		EG020A-F: Copper	7440-50-8	10 mg/L	96.0	70	130
		EG020A-F: Lead	7439-92-1	10 mg/L	92.0	70	130
		EG020A-F: Nickel	7440-02-0	10 mg/L	95.6	70	130
		EG020A-F: Zinc	7440-66-6	10 mg/L	97.0	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 2203443)							
ES1905579-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	105	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2201952)							
ES1905627-005	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	77.8	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	84.9	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2201951)							
ES1905627-005	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	120	74	150
		EP071: C15 - C28 Fraction	----	300 µg/L	103	77	153

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2201951) - continued							
ES1905627-005	Anonymous	EP071: C29 - C36 Fraction	----	200 µg/L	116	67	153
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2202280)							
ES1905444-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	84.5	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2201951)							
ES1905627-005	Anonymous	EP071: >C10 - C16 Fraction	----	250 µg/L	122	74	150
		EP071: >C16 - C34 Fraction	----	350 µg/L	109	77	153
		EP071: >C34 - C40 Fraction	----	150 µg/L	120	67	153
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2202280)							
ES1905444-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	88.0	70	130
EP080: BTEXN (QCLot: 2202280)							
ES1905444-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	89.2	70	130
		EP080: Toluene	108-88-3	25 µg/L	92.6	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	88.0	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	86.4	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	89.8	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	95.3	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1905610**	Page	: 1 of 4
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Telephone	: +61-2-8784 8555
Project	: 2127234	Date Samples Received	: 22-Feb-2019
Site	:	Issue Date	: 28-Feb-2019
Sampler	: TERRY NHAM	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: **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)							
QA02	**21-Feb-2019**	**----**	----	----	**25-Feb-2019**	20-Aug-2019	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
QA02	**21-Feb-2019**	**----**	----	----	**26-Feb-2019**	21-Mar-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QA02	**21-Feb-2019**	**25-Feb-2019**	28-Feb-2019	✓	**27-Feb-2019**	06-Apr-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QA02	**21-Feb-2019**	**25-Feb-2019**	28-Feb-2019	✓	**27-Feb-2019**	06-Apr-2019	✓
Clear glass VOC vial - HCl (EP080)							
QA02	**21-Feb-2019**	**25-Feb-2019**	07-Mar-2019	✓	**25-Feb-2019**	07-Mar-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QA02	**21-Feb-2019**	**25-Feb-2019**	28-Feb-2019	✓	**27-Feb-2019**	06-Apr-2019	✓
Clear glass VOC vial - HCl (EP080)							
QA02	**21-Feb-2019**	**25-Feb-2019**	07-Mar-2019	✓	**25-Feb-2019**	07-Mar-2019	✓
EP080: BTEXN							
Clear glass VOC vial - HCl (EP080)							
QA02	**21-Feb-2019**	**25-Feb-2019**	07-Mar-2019	✓	**25-Feb-2019**	07-Mar-2019	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	19	**10.53**	**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)							
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	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**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)							
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	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
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	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**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
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

28/2/19

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
☐BRISBANE 32 Shand 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 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
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☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: GHD Pty Ltd

OFFICE: Sydney

PROJECT: 21-27234

ORDER NUMBER:

PROJECT MANAGER: Henry Luo — CONTACT PH: 02 9239 7044 / 0414 090 002

SAMPLER: Terry Nham — SAMPLER MOBILE: 0403 251 883

COC emailed to ALS? (YES / NO) — EDD FORMAT (or default):

Email Reports to: henry.luo@ghd.com terry.nham@ghd.com

Email Invoice to (will default to PM if no other addresses are listed):

TURNAROUND REQUIREMENT (Standard TAT may be longer for some tests e.g.. Ultra Trace)
☒ Standard TAT (List due date):
☐ Non Standard or urgent TAT (List due date):

ALS QUOTE NO.: EN/005/18

COC SEQUENCE NUMBER (Circle)
COC: (1) 2 3 4 5 6 7
OF: (1) 2 3 4 5 6 7

FOR LABORATORY USE ONLY (Circle)
Custody Seal Intact? (Yes) No N/A
Free ice / frozen ice bricks present upon receipt? (Yes) No N/A
Random Sample Temperature on Receipt: 4.1 °C
Other comment:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Terry Nham (GHD) [signature]	Sep-ALS Crows Nest		MC
DATE/TIME: 21/2/2019	DATE/TIME: 22/02/19 1255pm	DATE/TIME:	DATE/TIME: 22/2/19 3:15pm

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price)
Where **Metals** are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required).

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	TRH / BTEX / PAH / 8 Metals (W-26)
1	QA02	21/2/19	Water		9	X
				TOTAL		

Environmental Division
Sydney
Work Order Reference
ES1905610
Telephone : + 61-2-8784 8555

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; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial 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.