Central Station Main Works

Ongoing Groundwater Monitoring (April to September 2019) Report

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Glossary of Terms and Abbreviations

Abbreviation	Description
AGJV	Aurecon & GHD Design Joint Venture
ADWG	Australian Drinking Water Guidelines
AHD	Australian Height Datum
BOD	Biological Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
CBD	Central Business District
CGWMP	Construction Groundwater Monitoring Plan
CSM	Central Station Main Works
COPC	Contaminants of Potential Concern
DO	Dissolved Oxygen
EC	Electrical Conductivity
GILs	Groundwater Investigation Levels
LOR	Laing O'Rouke
NEPC	National Environment Protection Council
NHMRC	National Health and Medical Research Council
NRAR	Natural Resources Access Regulator
OCP	Organochlorine Pesticides
OPP	Organophosphorus Pesticides
PCB	Polychlorinated Biphenyl
PAH	Polycyclic Aromatic Hydrocarbons
QA/QC	Quality Assurance/Quality Control
RSA	Rail Services Australia
RPD	Relative percentage difference
SWL	Standing Water Level
TRH	Total Recoverable Hydrocarbons

1 Introduction

AGJV Pty Ltd (AGJV) was commissioned by Laing O'Rourke (LOR) to undertake a groundwater 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 - (LOR, Nov 2018)) 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. The groundwater monitoring requirements are detailed in Section 10 of the CGWMP. Section 10 of the CGWMP also requires that the groundwater monitoring program be reviewed and amended on an annual basis to ensure it remains consistent with project priorities.

The groundwater baseline monitoring commenced in September 2018 on a monthly basis. A report was prepared for the first six monthly monitoring events (September 2018 to February 2019, details in **Section 2.1**). Section 7.4 of the CGWMP requires that this first six months of monitoring constitutes the baseline groundwater conditions on which the construction works will be compared. It is noted, however, that a number of monitoring bores have been destroyed, while others have been installed during and after the baseline monitoring period.

This report has been prepared to document the groundwater monitoring events undertaken between April and September 2019 as part of the ongoing groundwater monitoring program. It is noted that this report will take into consideration the previous six months of monitoring (the baseline) data in order to compare the current monitoring period with the baseline monitoring period, as well as inform the annual review of the groundwater monitoring program and provide recommendations on the monitoring requirements in accordance with Section 10 of the CGWMP.

1.1 Objectives

The objectives of this groundwater baseline monitoring program are to:

- Characterise the post-baseline groundwater conditions including groundwater levels and groundwater quality within and surrounding the CSM project area.
- Inform design decisions for the CSM infrastructure.
- Monitor the groundwater conditions including groundwater levels and groundwater quality within and surrounding the CSM project area during construction.
- Comply with the groundwater monitoring program outlined in the CGWMP, which has been approved by Natural Resources Access Regulator (NRAR).
- Undertake an annual review of the monitoring program in accordance with Section 10 of the CGWMP.

1.2 Scope of work

The scope of work completed by AGJV is summarised below:

- Gauging of up to 17 monitoring wells on a monthly basis for six months. Constraints encountered, with regards to well access, during the monitoring program are discussed in **Section 2**.
- Installation of data loggers in five selected existing wells (CSM_BH02, CSM_BH04, CSM_BH06, SRT_BH047, 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 contaminants 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; ferrous iron, manganese and major anions/cations (chloride, sulfate, ammonia, nitrate, sodium, calcium, potassium and magnesium).
- Preparation of this report

During the monitoring period, additional monitoring wells (targeting gasworks impact) have been included in the monitoring program. Site constraints were encountered in relation to availability, access and condition of monitoring wells due to initial construction activities. 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.

Table B1 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 relatively stable, with one well destroyed since event 11 (August 2019). Further to this, additional monitoring wells (one deep well and two shallow wells, which were installed between May 2019 and June 2019) have been included in the ongoing groundwater monitoring program. Two shallow monitoring wells installed in July 2019 have been included in the ongoing groundwater monitoring program from September 2019.

2 Status of groundwater monitoring program

2.1 Overview of the baseline groundwater program

Groundwater baseline monitoring for CSM commenced in September 2018, as per the CGWMP. The first six monthly monitoring program was completed in February 2019, and subsequently a groundwater monitoring report was prepared (AGJV, June 2019)).

During the first monthly monitoring program, a number of constraints were encountered in relation to availability, access and condition of monitoring wells. These were discussed in the AGJV report dated 6 June 2019 and summarised in **Table B1, Appendix B**. Six shallow baseline monitoring wells were available for post baseline monitoring.

LOR engaged ADE to install five deep monitoring wells and two shallow groundwater monitoring wells per AGJV's direction during February and March 2019. The monitoring wells are illustrated in **Figure 1, Appendix A.** The status of these monitoring wells during the current six monthly monitoring program are included in **Table B1, Appendix B**. The available borehole logs of these monitoring wells are included in **Appendix C**.

With regard to the requirements of Section 7.4 of CGWMP, the baseline monitoring for these deep bores began during the current monitoring period. This is considered to be reasonable given that the deeper groundwater system was not intersected by construction activities over this monitoring period.

Ongoing groundwater monitoring resumed in April 2019 and the second six monthly monitoring program was completed in September 2019.

2.2 Uncovered gasworks tank

A former gasworks brick tank was uncovered during construction of the Metro Box in April 2019. Consequently LOR engaged ADE to undertake an investigation of gasworks impact in March and April 2019. The investigation included drilling and installation of two shallow monitoring wells (GASW_BH7 and GASW_BH11) and one deep monitoring well (GASW_BH10). As requested by LOR, these three monitoring wells have been included in the ongoing groundwater monitoring program from June 2019.

In August 2019, LOR engaged ADE to undertake an additional investigation regarding gasworks impact. This additional investigation included drilling and installation of two shallow groundwater monitoring wells (GASW_BH23 and GASW_BH25a). As requested by LOR, these two shallow monitoring wells have been included in the ongoing groundwater monitoring program from September 2019.

With regard to the requirements of Section 7.4 of CGWMP, the sixth months of baseline monitoring for these wells only began during the current monitoring period. The results, however, are considered to be consistent with the previous baseline groundwater monitoring in this area, particularly in areas surrounding the gasworks itself. They are therefore expected to be representative of baseline conditions that have not been impacted by construction.

These monitoring well locations are illustrated on **Figure 1, Appendix A**. The status of these monitoring wells during the current six monthly monitoring program are included in **Table B1, Appendix B**. The borehole logs of these monitoring wells are included in **Appendix C**.

2.3 Summary of groundwater monitoring between September 2018 and February 2019

The status of monitoring wells during the first six monthly monitoring program (September 2018 and February 2019) are included in **Table B1, Appendix B**. The chemical data of the first six monthly monitoring program are included in **Table B2, Appendix B.**

3 Basis for assessment

3.1 Relevant guidelines

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:

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

3.2 Onsite human health screening levels

The NEPM HSLs for petroleum hydrocarbons for commercial / industrial land use have been adopted for the 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 in sand. 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 in the National Health and Medical Research Council (NHMRC, 2008) have been used as a conservative screening tool for direct contact by intrusive maintenance workers on site coming into contact with groundwater. 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.

3.3 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, and as per the NEPM (NEPC, 2013)., the screening criteria for recreational drinking water quality in National Health and Medical Research Council (NHMRC, 2008) have been multiplied by a factor of 10 and adopted to provide a conservative recreational screening criteria for this assessment.

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 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, which encompasses the screening criteria outlined in guideline for fresh and marine water quality (ANZECC & ARMCANZ, 2000a). These criteria are currently the same as that provided in the updated the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018).

For assessment of pH values in groundwater, the trigger value for pH for estuaries in NSW in ANZECC & ARMCANZ (2000a) 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 receiving water environment (being Cockle Bay and/or Blackwattle Bay).

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 2019-20 (Sydney Water, 2019). 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* (Standards Australia, 2009) 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, Dierickx & Martinez Beltran (2005) 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

4 Field investigation

4.1 Groundwater sampling dates

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

- Event 7 – 16 to 18 April 2019
- Event 8 – 13 to 15 May 2019
- Event 9 – 6 to 11 June 2019
- Event 10 – 29 to 31 July 2019
- Event 11 – 28 to 30 August 2019
- Event 12 – 25 to 27 September 2019

4.2 Groundwater monitoring well locations

The groundwater monitoring wells sampled during the current six monthly program are presented in **Table B1, Appendix B**. The location of these monitoring wells is shown in **Figure 1, Appendix A**.

As discussed in Section 2, LOR excavated a gasworks brick tank during heritage excavation works and during piling works at the south western corner of the Metro Box footprint in April 2019. Three additional groundwater monitoring wells were installed by ADE in April 2019 in the vicinity of the gasworks brick tank to assess the potential groundwater impacts. GASW_BH7 and GASW_BH10 are within the gasworks brick tank and GASW_BH11 is outside the gasworks brick tank. These monitoring wells were incorporated into the ongoing groundwater monitoring program from June 2019.

Two additional shallow groundwater monitoring wells were installed by ADE in August 2019 within the uncovered gasworks gasholder. These two monitoring wells were incorporated into the ongoing groundwater monitoring program from September 2019. It should be noted that these two shallow monitoring wells are unlikely to be representative of the broader shallow groundwater aquifer, given the gasholder structure (brick wall and concrete / puddlle clay base) may act as an aquitard.

4.3 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_CBH017, a shallow monitoring well on platforms 20/21
- SRT_BH047, a shallow monitoring well on platforms 6/7
- CSM_BH02, a deep monitoring well on platforms 10/11
- CSM_BH04, a deep monitoring well at the end of Road 15

- CSM_BH06, a deep monitoring well on Ambulance Avenue

Therefore there were five data loggers that recorded groundwater levels across the entire monitoring period. The groundwater levels at these five monitoring wells are graphed in **Appendix D**.

AGJV noted that tunnel boring machines (TBM) passed the CSM project area during July and August 2019. The TBM movement had significant impact on the groundwater levels (discussed in **Section 5.3**).

4.4 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 E**. Groundwater purging sheets documenting the sampling procedure at each groundwater well are included in **Appendix F**.

4.5 Groundwater analysis

The analytical schedule for groundwater is presented in **Table B2, Appendix B**. In summary the groundwater samples were analysed as follows:

- Groundwater samples were submitted for laboratory analysis of COPC including, eight (8) metals, ferrous iron, manganese, 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 Introduction

The primary aim of this section is to present the findings of the current six monthly monitoring period (April 2019 to September 2019).

Consideration of the analytical results relative to the baseline data set and any changes that could be implemented to the groundwater monitoring program are presented in Section 7.

In order to show long term trends in key water quality analytes (Section 5.6) and groundwater elevations (Sections 5.3 and 5.4) data from the baseline and current monitoring periods have been combined.

5.2 Field observations

During sampling, no olfactory or visual contamination (such as sheen and odours) was observed, with the exception of two shallow groundwater monitoring wells targeting gasworks waste (GASW_BH23 and GASW_BH25a). Strong hydrocarbon odour was encountered at these two monitoring well locations. Field observations are summarised in **Table B4, Appendix B**. The groundwater purging sheets are included in **Appendix F**.

5.3 Groundwater levels and trends

5.3.1 Gauging results – shallow monitoring wells

The groundwater gauging data is presented in **Table B3**, **Appendix B.**

The depth to groundwater in the shallow groundwater aquifer ranged between 2.44 metres below the top of the well casing (mbtoc) and 6.314 mbtoc over the monitoring period.

The groundwater elevations of the shallow aquifer ranged between 10.953 m AHD at CSM_BH10S (August 2019) and 19.915 m AHD at SRT_CBH017 (May 2019). The fluctuation in manual groundwater elevations in each shallow well over the current monitoring period ranged between 0.231 m at SRT_CBH015 and 1.204 m at SRT_BH059.

The inferred shallow aquifer groundwater flow direction (using September 2019 monitoring data) is presented in **Figure 2, Appendix A** and is broadly to the west to north west.

5.3.2 Gauging results – deep monitoring wells

The depth to groundwater in the deeper groundwater system ranged between 10.772 mbtoc in SRT_BH063 (located offsite and to the east of the Eastern Suburb Railway Tunnel) and 23.705 mbtoc at CSM_BH06.

The groundwater elevations of the deep aquifer ranged between -6.444 m AHD in CSM_BH04 (July 2019) and 8.118 m AHD in GASW_BH10 (June 2019).

The groundwater elevation in offsite monitoring well SRT_BH063 ranged between 14.57 m AHD and 16.638 m AHD. The fluctuation in manual groundwater elevations in each deep well over the current monitoring period ranged between 0.068 m at SRT_BH063 and 9.089 m at CSM_BH02.

The inferred deep aquifer groundwater flow direction (using June 2019 monitoring data and excluding SRT_BH63 and GASW_BH10) is presented in **Figure 3**, **Appendix A** and is broadly to the north east.

5.3.3 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.

5.3.3.1 SRT_BH047

SRT_BH47 is a shallow monitoring well with the well screened across bedrock sandstone and laminate / residual soil.

The groundwater levels at SRT_BH047 generally ranged between 15.6 m AHD and 18 m AHD (excluding sampling response) during the monitoring period between September 2018 and September 2019. The groundwater levels at SRT_BH047 responded to rainfall events.

5.3.3.2 SRT_CBH017

SRT_CBH017 is a shallow monitoring well with the well screened within shale.

The groundwater levels at SRT_CBH017 generally ranged between 19.3 m AHD and 20.30 m AHD (excluding sampling response) during the monitoring period between September 2018 and September 2019. The groundwater levels at SRT_CBH017 responded to rainfall events.

5.3.3.3 CSM_BH06

CSM_BH06 is a deep monitoring well screened within sandstone.

The groundwater levels at CSM_BH06 generally ranged between -2 m AHD and 1.8 m AHD (excluding sampling response) during the monitoring period between April and September 2019. The groundwater levels at CSM_BH06 were stable (around 1.8 m AHD) between April and July 2019, then had significant declines in late July 2019, when tunnel boring machines (TBM) moved through the CSM project area. Since then, the groundwater levels at CSM_BH06 have steadily recovered. Groundwater levels at CSM_BH06 did not respond to rainfall events.

5.3.3.4 CSM_BH04

CSM_BH04 is a deep monitoring well screened within sandstone.

The groundwater levels at CSM_BH04 generally ranged between -9.5 m AHD and -2.5 m AHD (excluding sampling response) during the monitoring period between April and September 2019. The groundwater levels at CSM_BH06 were stable (around 1.7 m AHD between April and July 2019, then had significant declines in late July 2019, when tunnel boring machines (TBM) moved through CSM project area. Since then, the groundwater levels at CSM_BH06 have slowly recovered. Groundwater levels at CSM-BH04 did not respond to rainfall events.

5.3.3.5 CSM_BH02

CSM_BH02 is a deep monitoring well screened within sandstone.

The groundwater levels at CSM_BH02 were only available from the data logger from the end of August 2019. Data before that was lost due to the significant decline of groundwater levels likely caused by undermining of the TBM and technical issues with the data logger. Based on the available data, groundwater levels at CSM_BH02 have steadily recovered following impact by TBM and did not

respond to rainfall events. The groundwater levels at CSM_BH02 ranged between 0 and 0.75 m AHD during the monitoring period between August and September 2019.

5.3.4 TBM

Information from LOR indicated:

- TBM excavating the east tunnel (TBM1) passed under Central Station between 18 and 19 July 2019.
- TBM excavating the west tunnel (TBM2) passed under Central Station between 1 and 2 August 2019.

AGJV undertook the sampling at the following dates:

- Event 10 – 29 to 31 July 2019
- Event 11 – 28 to 30 August 2019

From the graphs for deep monitoring wells CSM_BH04 and CSM_BH06, groundwater levels had a significant drawdown when the TBMs passed the Central Station. However the groundwater levels in shallow monitoring wells SRT_BH047 and SRT_CBH017 did not respond.

5.4 Field measured groundwater quality parameters

The field measured groundwater quality parameters are summarised in **Table B4** of **Appendix B**. The field purging sheets are included in **Appendix F**.

The measured temperature, electrical conductivity and pH at monitoring well locations were relatively consistent across the monitoring period. It is noted that the oxidation / reduction potential fluctuated and were lower in deep monitoring wells compared with the shallow wells. Dissolved oxygen and pH observations were also generally lower in the deep wells.

The electrical conductivity (EC) at all locations was generally indicative of fresh water.

5.5 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 B2** of **Appendix B** and the laboratory reports are provided in **Appendix G**.

It is noted that all monitoring data from the baseline monitoring period and the current monitoring period is included in **Table B2** of **Appendix B** to facilitate the annual review of the monitoring program.

The detections and exceedances of adopted screening criteria of contaminants of potential concern (COPC) are summarised in **Table B9, Appendix B** and are discussed further below.

5.5.1 Human health and ecological screening criteria

Heavy Metals

The heavy metal analytical results are discussed below:

- Arsenic: The majority of the groundwater samples had reported concentrations below the laboratory reporting limit (0.001 mg/L). The maximum reported concentration was 0.006 mg/L. All samples had reported concentrations below the adopted onsite and offsite human health and ecological screening criterion.

- Cadmium: The majority of the groundwater samples had reported concentrations below the laboratory reporting limit (0.0002 mg/L). One inter-laboratory duplicate sample had a reported concentration of 0.0001 mg/L. All samples had reported concentrations below the adopted onsite and offsite human health and ecological screening criterion.

- Chromium: The majority of groundwater samples had reported concentrations below the laboratory reporting limit (0.001 mg/L). The maximum reported concentration was 0.007 mg/L. All samples except one (CSM_BH06) had reported concentrations below the adopted offsite ecological screening criterion (0.0044 mg/L).

- Copper: Close to half of the groundwater samples had reported concentrations above the adopted offsite ecological screening criterion (0.0013 mg/L) but below the adopted onsite and offsite human health screening criterion (20 mg/L). The maximum reported concentration was 0.055 mg/L.

- Lead: The majority of the groundwater samples had reported concentrations below the laboratory reporting limit (0.001 mg/L). The maximum reported concentration was 0.003 mg/L. All samples had reported concentrations below the adopted onsite and offsite human health and ecological screening criterion.

- Manganese: The majority of groundwater samples had reported concentrations above the laboratory reporting limit (0.005 mg/L). The maximum reported concentration was 7.5 mg/L. Ten samples from SRT-CBH015 and one sample from SRT_CBH017 had reported concentrations of manganese above the adopted onsite and offsite human health screening criterion.

- Mercury: All of the groundwater samples had reported concentrations below the laboratory reporting limit (0.0001 mg/L) and below the adopted onsite and offsite human health and ecological screening criterion.

- Nickel: Close to half of the groundwater samples had reported concentrations above the adopted offsite ecological screening criterion (0.007 mg/L) but below the adopted onsite and offsite human health screening criterion (0.2 mg/L). The maximum reported concentration was 0.043 mg/L.

- Zinc: More than half of the groundwater samples had reported concentrations above the adopted onsite and offsite ecological screening criterion (0.015 mg/L). The maximum reported concentration was 0.55 mg/L.

Cyanide

Cyanide exceeded the adopted offsite ecological screening criterion of 0.004 mg/L in all monitoring wells in part due to the laboratory LOR being in exceedance of this criterion. However concentrations of cyanide were detected above the LOR in 13 monitoring wells during the latest monitoring period, predominantly during the July 2019 monitoring event. AGJV reviewed the field sampling procedures and laboratory quality control and did not identified any issues with the sample collection and analysis.

AGJV reviewed the dataset of the 12 monitoring event and identified detection of total cyanide in a number of monitoring well locations in January 2019 and July 2019 monitoring events. AGJV consider the detection of total cyanide are not localised to uncovered gasworks gasholder and part of the background fluctuations.

TRH, BTEX and PAH

The majority of the groundwater 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 exceedance of adopted screening criteria was noted at the following locations:

- Concentrations of benzene in GASW_BH23 (1,900 µg/L) and GASW_BH25a (3,600 µg/L) exceeded the screening criteria for offsite recreation and protection of marine aquatic ecosystems.

- Concentrations of benzene in GASW_BH7 exceeded the screening criteria in two instances (27 µg/L and 70 µg/L) for offsite recreational receptors.

AGJV note that ADE reported a benzene concentration of 15,000 µg/L in GASW_BH25a (sampled on 23 August 2019), which exceeded the screen criteria (5,000 µg/L) for human health (onsite vapour intrusion). Details of the ADE data are included the Additional Gasworks Investigation report dated 26 September 2019 (reference LOR-09-14544 / EI v1f).

It is noted that laboratory reporting limit is above the adopted human health guidelines for offsite and onsite receptors for benzo (a) pyrene.

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 criteria for the protection of marine ecosystems.

Ammonia

The majority of samples submitted for analysis had reported concentrations below the laboratory detection limit (0.01 mg/L). All the samples reported concentrations below the adopted criteria for the protection of marine ecosystems, noting that one sample from SRT_BH039 collected in October 2018 during the previous monitoring period had a reported concentration above the adopted ecological criteria.

5.5.2 Aggressivity

Concentrations of sulfate, chloride and pH have been compared against the adopted aggressivity criteria in **Table B5** and **Table B6** of **Appendix B**. The results suggest that existing groundwater may present a mild to moderate risk to concrete structures intersecting groundwater. However due to the low pH values in groundwater at GASW_BH7 (a shallow groundwater monitoring well located within the uncovered gasworks tank) there is potential for a severe to very severe risk to concrete structures at this location.

The reported groundwater quality is not expected to be aggressive to steel piles with the exception at GASW_BH7, where groundwater presents a mild to moderate risk to steel structure.

5.5.3 Precipitation (Formation of Ochre)

Ferrous iron and manganese was intermittently analysed in groundwater samples collected between April and September 2019. The ferrous iron results are included in **Table B2** of **Appendix B**.

Ferrous iron concentrations ranged from below the laboratory reporting limits (0.05 mg /L) to maximum reported concentration of 19 mg/L at GASW_BH7. Comparison of the results against the criteria adopted for ochre formation suggests that there is a small to severe potential for ochre formation.

The manganese concentrations ranged from less than the laboratory reporting limit (0.005 mg/L) to 7.5 mg/L.

5.5.4 Sydney Water trade waste acceptance standards

The groundwater laboratory results of current monitoring period have been assessed against the Sydney Water trade waste criteria in **Table B2** 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 B2** of **Appendix B** against the pH acceptance standard suggests that existing groundwater beneath the site is commonly below the standard. For example, there were 12 monitoring wells with values below the acceptance standard, with the lowest detected pH of 3.5 being observed in GASW_BH7 (in August and September 2019).

The highest pH of 9.01 reported in SRT_BH52 (30 August 2019) is within the pH acceptance standard.

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). Information from LOR indicated that water generated from dewatering process will be treated in a wastewater treatment plant prior to discharge.

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).

5.6 Discussion of trends in COPC concentrations

The groundwater analytical results for the current monitoring period (April to September 2019) and previous monitoring period (September 2018 to February 2019) are included in **Table B2, Appendix B**.

The field measured pH and laboratory analytical results for total dissolved solids (TDS), dissolved nickel, dissolved zinc, dissolved copper and dissolved lead for 11 monitoring well locations (five deep wells and six shallow wells with data of minimum five events) have been graphed and are included in **Appendix D**. These analytes were selected as they are:

- They have a high frequency of laboratory detection facilitating a reasonable assessment of trends over time
- They are at concentrations that commonly exceed the adopted human health or ecological criteria, and therefore of key concern.

The graph for total dissolved solids suggests an increasing trend in total dissolved solids over the entire monitoring period, which does not appear to be related to individual rainfall events. The Sydney region is in the midst of an overall drier period, which may be partially responsible for the gradual increase, although this cannot be confirm with the current data set. It appears unlikely that the response would be due to construction given the relatively consistent trend over the entire monitoring period (inclusive of background monitoring)

There is no clear trend in the pH results suggesting that the results represent normal fluctuation in background conditions.

The concentrations in nickel, zinc, copper and lead appear to have a high degree of fluctuation in background concentrations. It is noted however, that in monitoring wells SRT_BH047, SRT_BH052, SRT_CBH015 and SRT_CBH017, which have data extending across both monitoring periods (approximately 12 months of monitoring), there appears to be a broad trend of decreasing concentrations over the current six month monitoring period relative to monitoring over the fist six

month period. It is unclear if this is associated with construction works or a climatic effect, but at present it is resulting in less frequent and lower level exceedances of the adopted criteria at these locations.

6 Quality assurance and quality control assessment results

6.1 Field program

As part of the AGJV QA/QC program, 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 B7, Appendix B**.

Two elevated RPDs (86% and 67%) were noted between primary samples CSM_BH09S and field duplicate QC01 (in July and September 2019) for copper. In addition, two elevated RPDs were noted for TRH F3 fraction. These elevated RPDs were likely attributed to the concentrations of analytes being close to the laboratory reporting limits (i.e. less than 10 times of the laboratory reporting limits), where a small difference in concentrations trigger an exaggerated RPD result.

The initial monitoring program (September 2018 to February 2019) reported a number of elevated RPDs, especially for copper and zinc. During the current monitoring program, AGJV reviewed the data of initial monitoring program and identified that the duplicate samples analysed by Eurofins were for total metals, instead of dissolved metals. AGJV considered this was the cause for elevated RPDs identified during the initial monitoring program.

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.

The rinsate and trip blank analytical results are summarised in **Table B8, Appendix B.** Laboratory analytical reports are included in **Appendix G.**

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 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 G**.

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 copper and TRH F3 fraction, the results of the QA/QC program 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.

7 Findings, conclusions and recommendations

7.1 Findings and conclusions

In accordance with the objectives detailed in **Section 1.1**, and based on the information contained within this monitoring program, the following findings are found from the completed current groundwater monitoring period (subject to the limitations outlined in **Section 9**).

The groundwater elevation data suggests that there are two distinct aquifers at the site one in the overlying unconsolidated materials and the other in the Hawkesbury Sandstone. This is supported by:

- A distinct difference in groundwater elevations between the shallow and deeper aquifers.
- A significant difference in response to rainfall events between wells screened within the shallow and deep aquifers.
- A significantly different response to the passing of the TBM between wells screened in the shallow and deeper aquifer systems.

Groundwater flow direction within the shallow aquifer system is generally toward the north east in line with the general fall in topography and towards harbour areas.

Groundwater flow direction in the deeper aquifer appears to be to variable suggesting that there may be multiple discharge zones including to Darling harbour / Blackwattle Bay and to deeper infrastructure that is located below mean sea level (near CSM_BH04) located to the north of the station.

The groundwater quality sampling results suggest the following:

- Concentrations of COPC in all the groundwater wells appear generally stable across the initial monitoring period (September 2018 to February 2019) and current monitoring period (April to September 2019).
- A number of COPC have not been reported above laboratory reporting limits in any samples to date. These COPC include OCP, OPP and PCB. This indicates that there is no impacts from these COPC associated with current and historical activities, as such these COPC can be removed from future groundwater monitoring or undertaken on a quarterly basis only. While the laboratory limit of reporting is higher than the ecological criteria for endrin and chlorpyrifos these are not considered to be primary contaminants of concern. The laboratory limit of reporting for trace analysis of these pesticides analytes is also above the adopted ecological criteria indicating that trace analysis while having lower detections may not resolve any lower level exceedances.
- Based on the exceedances identified and summarised in **Table B9** of **Appendix B** the following analytes are expected to require management/treatment before discharge to surface water
  - pH
  - Cyanide
  - Metals including chromium, copper, lead, manganese, nickel and zinc.
  - Benzo(a)pyrene (subject to trace analysis)
  - BTEX
- Trace analysis of cyanide and benzo(a)pyrene in ongoing groundwater sampling events will clarify the requirement for management and/or treatment of these analytes.

- Statistical analysis of analytes such as cyanide and BTEX results is likely to be beneficial for informing bulk groundwater concentrations requiring treatment.
- BTEX and TRH results have only been detected in wells located in and around the gasworks. Monitoring of the gasworks wells for these analytes should continue on a monthly basis, however, quarterly monitoring is expected to be suitable for the remaining wells until such time as impacts are detected.
- While not identified by sampling for this monitoring program, concentrations of benzene in GASW_BH25a above the human health vapour criteria for industrial (construction) and commercial receptors have been identified by groundwater sampling completed by ADE (2019).

Based on the observed variations in key contaminants detected and field measured parameters, the groundwater baseline data have been collected and therefore the pre-construction groundwater baseline conditions in CSM project area have been characterised.

7.2 Recommendations

Based on the findings of current six monthly groundwater monitoring data and consideration of findings of initial six monthly groundwater monitoring data, AGJV recommend:

- Continued groundwater level monitoring (gauging), supported with the ongoing groundwater logger data collection, on a monthly basis.
- Trace analysis is completed on cyanide and benzo(a)pyrene in following groundwater monitoring events.
- Analysis of OCP, OPP, PCB can be removed from monitoring program
- BTEX and TRH results have only been detected in wells located in and around the gasworks. Monitoring of the gasworks wells for these analytes should continue on a monthly basis, however, quarterly monitoring is expected to be suitable for the remaining wells until such time as impacts are detected.
- Statistical analysis of analytes such as cyanide and BTEX results is likely to be beneficial for informing bulk groundwater concentrations requiring treatment.
- Continued factual reporting on a six monthly basis in accordance with the CGWMP.
- The groundwater aggressivity results should be provided to the design team for further consideration.
- The groundwater monitoring results should be provided to the relevant specialist assessing construction and operational management of groundwater quality.

The above recommendations should be included in the CGWMP during the next update.

8 References

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9 Limitations

It is noted that AGJV does not rely on any data collected and reported by other consultants.

This report has been prepared by AGJV for LOR and may only be used and relied on by LOR for the purpose agreed between AGJV and LOR as set out in section 1 of this report.

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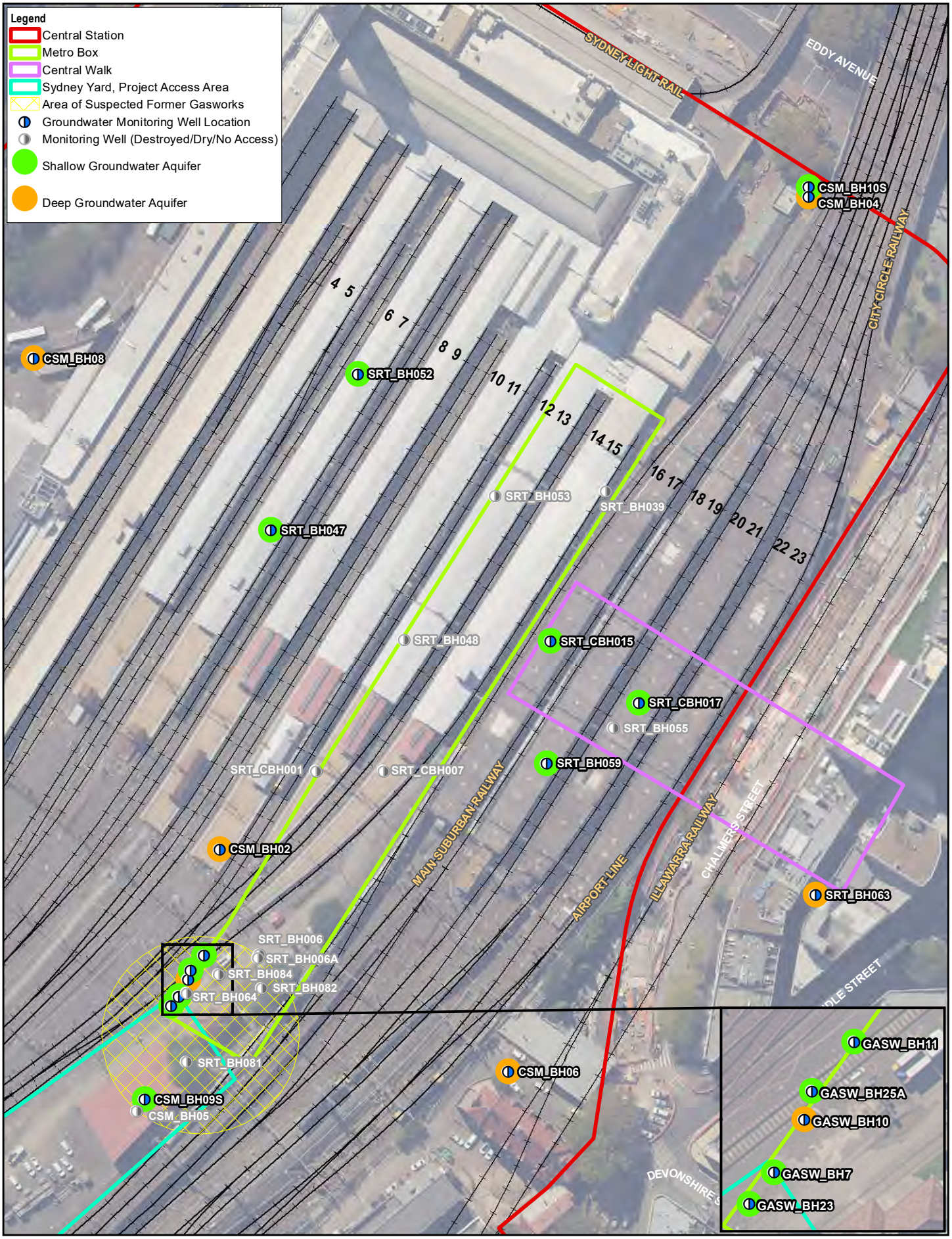
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Appendices

Appendix A
Figures



Paper Size ISO A4

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Metres

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

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AGJV

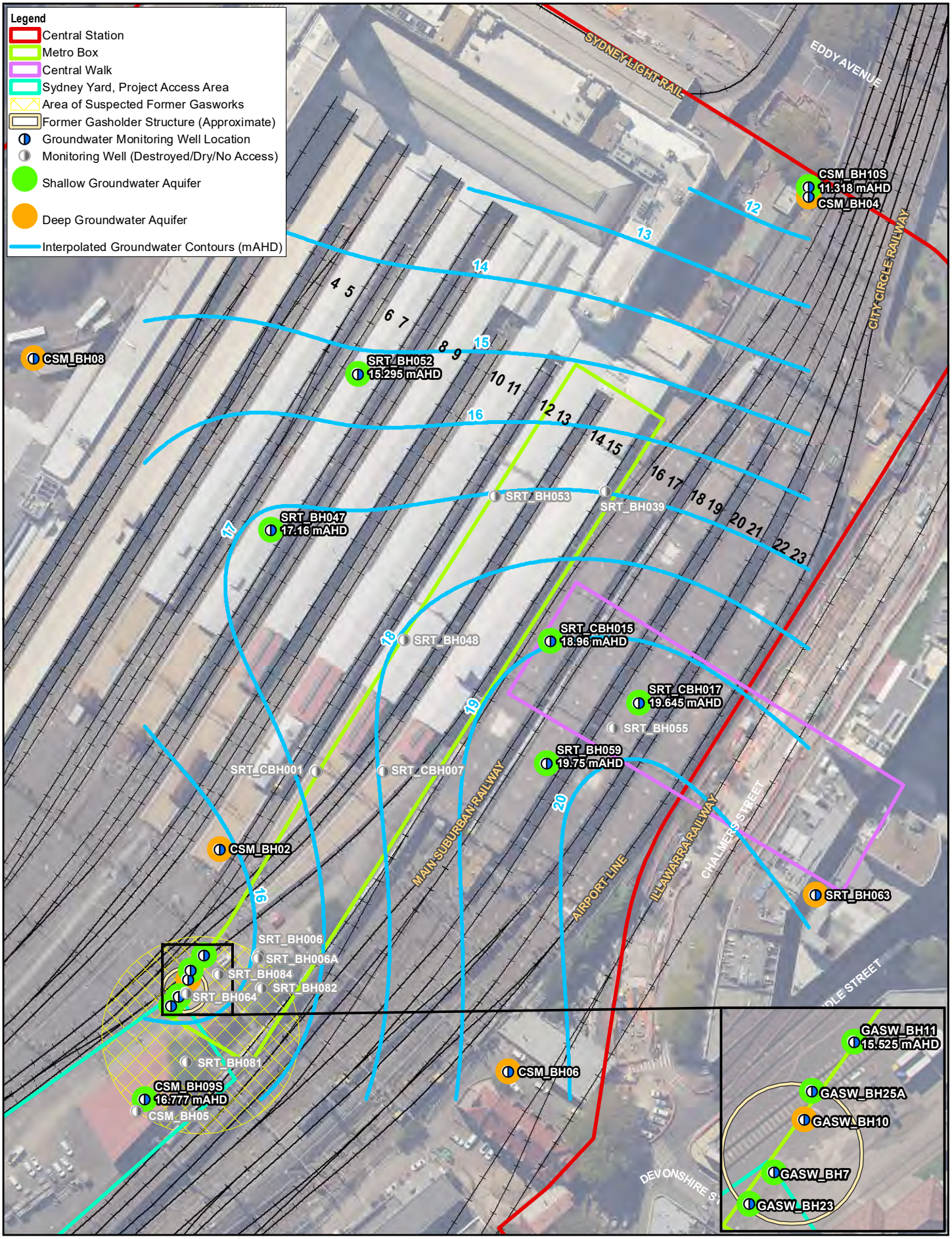
Laing O'Rourke
Central Station Main Works

Monitoring Well Locations (September 2019)

Project No. 21-27234
Revision No. -
Date 15/10/2019

Figure 1

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



Paper Size ISO A4

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Metres

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

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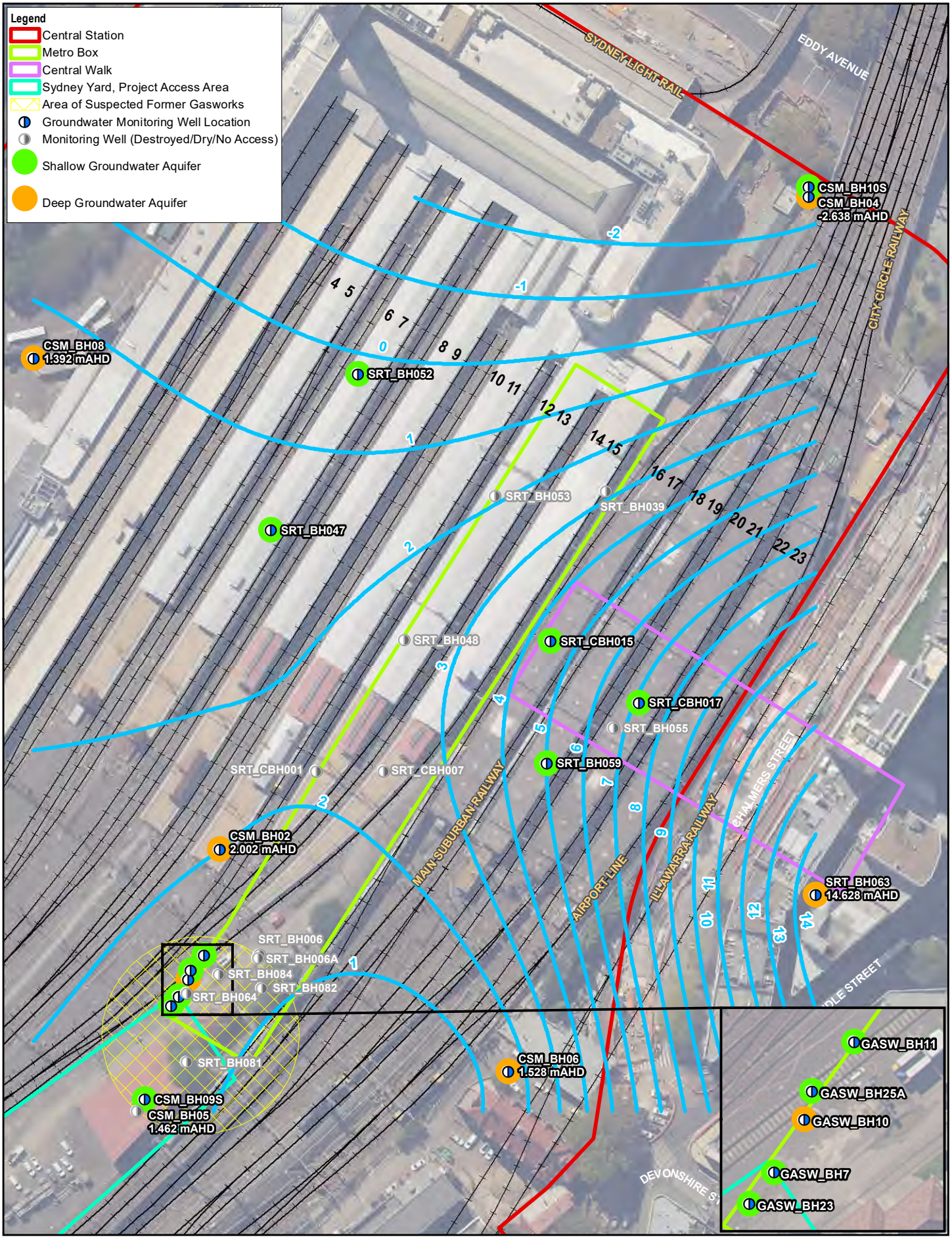
Laing O'Rourke
Central Station Main Works

Interpolated Groundwater Contours - September 2019 (Shallow Aquifer)

Project No. 21-27234
Revision No. -
Date 09/12/2019

Figure 2

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



Paper Size ISO A4

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Metres

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

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Central Station Main Works

Interpolated Groundwater Contours - June 2019 (Deep Aquifer)

Project No. 21-27234
Revision No. -
Date 18/10/2019

Figure 3

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Appendix B
Tables

Appendix B

Table 1 Summary of monitoring well status during monitoring program (September 2018 to September 2019)

Well ID	Approx. Location	Targeted aquifer	Datalogger placed?	Event 1 Sept 2018	Event 2 Oct 2018	Event 3 Nov 2018	Event 4 Dec 2018	Event 5 Jan 2019	Event 6 Feb 2019	Event 7 April 2019	Event 8 May 2019	Event 9 June 2019	Event 10 July 2019	Event 11 Aug 2019	Event 12 Sept 2019
SRT_BH006	Sydney Yard	Deep		Not Found / Destroyed											
SRT_BH006A	Sydney Yard	Shallow		Not Found / Destroyed											
SRT_BH039	Track 15	Deep		Sampled	Sampled	Destroyed									
SRT_BH047	Platform 6/7	Shallow	Logger + Baro	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	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	Sampled	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	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
SRT_BH063	Offsite Randle Lane	Shallow		Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	No Access
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	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
SRT_CBH017	Platform 20/21	Shallow	Logger	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
CSM_BH02	Platform 10/11	Deep	Logger							Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
CSM_BH04	Eddy Ave Driveway	Deep	Logger							Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
CSM_BH05	Sydney Yard	Deep								Sampled	Sampled	Sampled	Sampled	Destroyed	
CSM_BH06	Institute Drive	Deep	Logger							Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
CSM_BH08	Ambulance Ave	Deep								Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
CSM_BH09S	Sydney Yard	Shallow								Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
CSM_BH10S	Eddy Ave Driveway	Shallow								Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
GASW_BH7	Sydney Yard Gasworks	Shallow										Sampled	Sampled	Sampled	Sampled
GASW_BH10	Sydney Yard Gasworks	Deep										Sampled	Sampled	Sampled	Sampled
GASW_BH11	Sydney Yard Gasworks	Shallow										Sampled	Sampled	Sampled	Sampled
GASW_BH23	Sydney Yard Gasworks	Shallow													Sampled
GASW_BH25a	Sydney Yard Gasworks	Shallow													Sampled

	Well Sampled
	Not Sampled
	Not scheduled / available for sampling

Appendix B
Table B2 Groundwater sample analytical results (September 2018 to September 2019)

	Iron speciation	Inorganics				Acidity & Alkalinity				Major Ions						Nutrients	
	Ferrous Iron	pH (Lab)	Total Dissolved Solids	Total Suspended Solids	Cyanide (Total)	Alkalinity (Carbonate as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium	Magnesium	Potassium	Sodium	Chloride	Sulfate	Ammonia as N	Nitrate (as N)
	mg/L	pH Units	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
EQL	0.05	0.1	5	1	0.005	10	20	20	20	0.5	0.5	0.5	0.5	1	2	0.01	0.02
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											0.91	
NHMRC Recreational Guidelines 2008 - Health					*0.8*										*5000*		
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domestic)		**7-10**			**1**												
Field_ID	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Lab_Report_Number**													
CSM_BH02	CSM_BH02	16/04/2019	Normal	651825	1.6	-	-	-	<0.005	<10	110	-	-	9.2	11	2.7	61	51	44	0.05	<0.02
CSM_BH02	CSM_BH02	14/05/2019	Normal	656080	1.4	8.5	410	3300	0.005	11	240	-	-	43	26	3.2	64	68	38	0.12	<0.02
CSM_BH02	CSM_BH02	6/06/2019	Normal	660130	0.9	7.8	470	970	<0.005	<10	290	-	-	48	36	6.6	110	150	35	0.04	<0.02
CSM_BH02	CSM_BH02	30/07/2019	Normal	669059	<0.05	8	550	42,000	0.092	<10	350	-	-	50	43	5.8	120	500	24	<0.01	<0.02
CSM_BH02	CSM_BH02	29/08/2019	Normal	674722	<0.05	7.9	610	6400	<0.005	<10	320	-	-	49	40	5.7	120	190	25	<0.01	<0.02
CSM_BH02	CSM_BH02	26/09/2019	Normal	679636	1.2	7.8	440	3100	<0.005	<10	310	-	-	44	37	4.8	110	160	31	0.03	0.06
CSM_BH04	CSM_BH04	16/04/2019	Normal	651825	11	-	-	-	<0.005	<10	91	-	-	5.8	11	2.5	69	65	55	<0.01	<0.02
CSM_BH04	CSM_BH04	13/05/2019	Normal	656080	0.12	7.3	260	3700	<0.005	<10	85	-	-	5.2	9.5	2.4	66	56	56	<0.01	<0.02
CSM_BH04	CSM_BH04	11/06/2019	Normal	660130	7.7	**6.7**	200	2700	<0.005	<10	86	-	-	4.5	11	2.4	69	63	56	<0.01	<0.02
CSM_BH04	CSM_BH04	30/07/2019	Normal	669059	1	**7**	280	6500	0.035	<10	100	-	-	9	15	3	79	110	38	<0.01	<0.02
CSM_BH04	CSM_BH04	29/08/2019	Normal	674722	2	**6.5**	290	630	<0.005	<10	120	-	-	6.3	12	2.2	72	55	45	<0.01	<0.02
CSM_BH04	CSM_BH04	26/09/2019	Normal	679636	0.1	8.5	430	260	<0.005	16	300	-	-	6.5	11	3.1	150	74	33	0.06	<0.02
CSM_BH05	CSM_BH05	17/04/2019	Normal	651825	1.1	-	-	-	<0.005	<10	230	-	-	30	23	6	140	130	78	<0.01	<0.02
CSM_BH05	CSM_BH05	13/05/2019	Normal	656080	0.99	8.2	560	620	<0.005	<10	220	-	-	33	29	6.2	130	190	54	<0.01	<0.02
CSM_BH05	CSM_BH05	11/06/2019	Normal	660130	<0.5	7.4	520	110	<0.005	<10	240	-	-	44	39	8	150	220	50	<0.01	<0.02
CSM_BH05	CSM_BH05	29/07/2019	Normal	669059	1	7.2	500	930	0.025	<10	170	-	-	28	30	6.3	120	160	50	<0.01	<0.02
CSM_BH06	CSM_BH06	18/04/2019	Normal	651825	<0.5	-	-	-	<0.005	<10	180	-	-	42	31	5.6	110	180	29	<0.01	0.03
CSM_BH06	CSM_BH06	14/05/2019	Normal	656080	2.6	8	580	250	<0.005	<10	190	-	-	41	35	5.1	100	220	23	0.02	<0.02
CSM_BH06	CSM_BH06	6/06/2019	Normal	660130	2.9	7.2	490	240	<0.005	<10	190	-	-	43	34	6.8	120	210	27	0.08	0.03
CSM_BH06	CSM_BH06	30/07/2019	Normal	669059	0.56	7.3	600	960	0.029	<10	180	-	-	39	35	4.9	110	180	22	<0.01	<0.02
CSM_BH06	CSM_BH06	28/08/2019	Normal	674722	<0.05	8	600	810	<0.005	<10	210	-	-	41	34	5.2	110	200	22	<0.01	0.03
CSM_BH06	CSM_BH06	26/09/2019	Normal	679636	0.59	**6.9**	390	180	<0.005	<10	150	-	-	29	22	4.4	71	140	15	<0.01	0.09
QC02	CSM_BH06	14/05/2019	Field_D	656080	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC04	CSM_BH06	8/06/2019	Field_D	660130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CSM_BH08	CSM_BH08	18/04/2019	Normal	651825	6.2	-	-	-	<0.005	<10	120	-	-	13	16	4.1	79	93	41	0.06	<0.02
CSM_BH08	CSM_BH08	15/05/2019	Normal	656080	5	7.9	310	180	<0.005	<10	120	-	-	11	16	3.3	71	92	42	<0.01	<0.02
CSM_BH08	CSM_BH08	6/06/2019	Normal	660130	3.5	7.2	250	73	<0.005	<10	110	-	-	49	28	11	71	90	42	<0.01	<0.02
CSM_BH08	CSM_BH08	30/07/2019	Normal	669059	4.4	7.3	350	6.2	0.019	<10	190	-	-	19	22	4.4	83	110	37	0.02	0.06
CSM_BH08	CSM_BH08	29/08/2019	Normal	674722	6.6	7.4	420	34	<0.005	<10	160	-	-	17	23	4.3	93	110	32	0.03	<0.02
CSM_BH08	CSM_BH08	26/09/2019	Normal	679636	6.2	7.2	280	35	<0.005	<10	130	-	-	11	17	3.1	78	94	41	0.02	<0.02
QC02	CSM_BH08	18/04/2019	Field_D	651825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC03	CSM_BH08	6/06/2019	Interlab_D	ES1917968	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CSM_BH09S	CSM_BH09S	17/04/2019	Normal	651825	9.4	-	-	-	<0.005	<10	38	-	-	13	11	7.1	120	79	270	0.2	0.59
CSM_BH09S	CSM_BH09S	13/05/2019	Normal	656080	7.1	7.4	460	66	<0.005	<10	76	-	-	6.2	7.3	4.5	100	57	190	0.1	<0.02
CSM_BH09S	CSM_BH09S	11/06/2019	Normal	660130	3.4	**6.6**	390	46	<0.005	<10	66	-	-	12	8.7	7.2	130	72	210	0.1	0.31
CSM_BH09S	CSM_BH09S	29/07/2019	Normal	669059	7.2	**6.7**	460	58	0.01	<10	59	-	-	7.8	8.5	4.7	120	88	210	0.08	<0.02
CSM_BH09S	CSM_BH09S	28/08/2019	Normal	674722	4.6	**6.8**	440	87	<0.005	<10	61	-	-	5.1	6.6	3.6	110	49	160	0.04	<0.02
CSM_BH09S	CSM_BH09S	25/09/2019	Normal	679636	4.7	**6.6**	390	49	<0.005	<10	49	-	-	6.4	7.9	3.4	120	56	220	0.03	0.32
QC01	CSM_BH09S	17/04/2019	Interlab_D	ES1912362	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	13/05/2019	Interlab_D	ES1914810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	29/07/2019	Interlab_D	ES1924197	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	28/08/2019	Interlab_D	EM1914568	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	25/09/2019	Interlab_D	ES1931406	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CSM_BH10S	CSM_BH10S	16/04/2019	Normal	651825	<0.5	-	-	-	<0.005	<10	23	-	-	3.4	5.5	3.1	49	38	85	<0.01	1.6
CSM_BH10S	CSM_BH10S	13/05/2019	Normal	656080	0.13	**6.6**	270	210	<0.005	<10	<20	-	-	4	5.6	3.3	45	130	350	<0.01	1.7
CSM_BH10S	CSM_BH10S	11/06/2019	Normal	660130	<0.5	**5.9**	140	210	<0.005	<10	<20	-	-	3.7	6.1	4.8	42	37	66	0.06	2.3
CSM_BH10S	CSM_BH10S	30/07/2019	Normal	669059	<0.05	**6.7**	220	200	0.014	<10	35	-	-	6.9	6.4	3.6	38	36	61	<0.01	2.3
CSM_BH10S	CSM_BH10S	29/08/2019	Normal	674722	<0.05	**6.1**	240	170	<0.005	<10	20	-	-	3.9	5.5	2.9	39	19	57	<0.01	2
CSM_BH10S	CSM_BH10S	25/09/2019	Normal	679636	<0.05	**6.6**	150	140	<0.005	<10	25	-	-	3.9	5.4	2.3	34	20	56	<0.01	1.8
GASW_BH10	GASW_BH10	5/06/2019	Normal	659250	<0.5	7.8	560	84	0.005	<10	310	<20	310	44	34	18	130	150	42	0.02	-
GASW_BH10	GASW_BH10	30/07/2019	Normal	669059	3.7	**7**	610	150	<0.005	<10	330	-	-	48	43	9.7	130	160	<5	<0.01	<0.02
GASW_BH10	GASW_BH10	28/08/2019	Normal	674722	4.2	7.7	1100	260	<0.005	<10	440	-	-	41	40	29	150	170	<5	0.16	<0.02
GASW_BH10	GASW_BH10	26/09/2019	Normal	679636	11	7.4	920	290	<0.005	<10	450	-	-	71	52	15	150	180	<5	<0.01	<0.02
GASW_BH11	GASW_BH11	5/06/2019	Normal	659250	2.5	**6.1**	210	300	0.013	<10	71	<20	71	5.1	8	2.7	57	43	42	<0.01	-
GASW_BH11	GASW_BH11	30/07/2019	Normal	669059	3.1	**6.3**	210	44	<0.005	<10	70	-	-	4.4	8.4	2	56	100	59	0.03	<0.02
GASW_BH11	GASW_BH11	28/08/2019	Normal	674722	1.2	**6.6**	250	22	<0.005	<10	55	-	-	5.3	7.1	1.7	52	39	48	0.01	<0.02
GASW_BH11	GASW_BH11	25/09/2019	Normal	679636	1.1	**6.3**	130	28	<0.005	<10	41	-	-	4.7	6.7	1.3	45	37	46	0.03	<0.02
QC02	GASW_BH11	5/06/2019	Field_D	659250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GASW_BH23	GASW_BH23	25/09/2019	Normal	679636	10	7.6	640	480	<0.005	<10	180	-	-	160	14	13	39	19	380	0.25	<0.02
GASW_BH25A	GASW_BH25A	25/09/2019	Normal	679636	0.31	7.5	460	21	0.023	<10	97	-	-	97	6.1	6.6	47	26	260	0.39	<0.02
GASW_BH7	GASW_BH7	5/06/2019	Normal	659250	5.4	**5.6**	310	28	<0.005	<10	35	<20	35	27	5.1	1.2	61	38	140	<0.01	-
GASW_BH7	GASW_BH7	30/07/2019	Normal	669059	17	**3.9**	280	20	0.006	<10	<20	-	-	5.4	4.8	0.8	63	41	150	0.03	<0.02
GASW_BH7	GASW_BH7	28/08/2019	Normal	674722	19	**3.5**	330	14	<0.005	<10	<20	-	-	3.7	4.8	0.7	64	29	150	0.03	<0.02
GASW_BH7	GASW_BH7	25/09/2019	Normal	679636	12	**3.5**	260	27	<0.005	<10	<20	-	-	4.3	4.2	0.5	69	35	160	0.02	0.05
QC01	GASW_BH7	5/06/2019	Interlab_D	ES1917381	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH039	7/09/2018	Interlab_D	ES1826658	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH039	26/10/2018	Interlab_D	ES1832040	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT-BH039	SRT_BH039	7/09/2018	Normal	616629	-	-	-	-	0.007	80	<20	-	-	460	<0.5	160	140	28	940	0.7	1.3
SRT-BH039	SRT_BH039	25/10/2018	Normal	624838	<0.05	-	-	-	<0.005	70	<20	-	-	460	<0.5	110	98	45	720	1	0.05
SRT_BH047	SRT_BH047	26/11/2018	Normal	629922	-	-	-	-	<0.005	<10	170	-	-	53	6.9	0.9	31	39	12	<0.01	17
SRT_BH047	SRT_BH047	18/12/2018	Normal	634274	0.06	-	-	-	<0.005	<10	63	-	-	35	8	1.6	31	33	16	<0.01	22
SRT_BH047	SRT_BH047	17/01/2019	Normal	636542	0.05	-	-	-	0.02	<10	190	-	-	61	6.8	0.9	29	23	11	<0.01	19
SRT_BH047	SRT_BH047	20/02/2019	Normal	641720	<0.05	-	-	-	<0.005	<10	100	-	-	26	6.6	1.3	53	26	12	<0.01	19
SRT_BH047	SRT_BH047	16/04/2019	Normal	651825	<0.5	-	-	-	<0.005	<10	62	-	-	24	9.6	1.8	37	33	15	<0.01	25
SRT_BH047	SRT_BH047	14/05/2019	Normal	656080	<0.05	8.1	360	40	<0.005	<10	120	-	-	51	9.7	1.2	34	43	11	<0.01	23
SRT_BH047	SRT_BH047	7/06/2019	Normal	660130	<0.5	8	230	48	<0.005	<10	98	-	-	37	10	1.1	35	26	11	<0.01	23
SRT_BH047	SRT_BH047	30/08/2019	Normal	674722	<0.05	8.1	360	51	<0.005	<10	120	-	-	50	8.6	0.9	33	22	10	<0.01	22
SRT_BH047	SRT_BH047	27/09/2019	Normal	679636	<0.05	7.7	270	22	<0.005	<10	140	-	-	51	8	0.8	31	25	11	<0.01	21
SRT-BH047	SRT_BH047	6/09/2018	Normal	616629	-	-	-	-	<0.005	<10	140	-	-	64	8.1	1	34	27	7.6	<0.01	21
SRT-BH047	SRT_BH047	25/10/2018	Normal	624838	<0.05	-	-	-	<0.005	<10	160	-	-	58	6.1	0.9	32	25	14	<0.01	18
SRT-BH047	SRT_BH047	31/07/2019	Normal	669059	<0.05	7.6	270	65	0.008	<10	88	-	-	43	11	1.6	35	50	13	<0.01	22
SRT_BH048	SRT_BH048	26/11/2018	Normal	629922	-	-	-	-	<0.005	<10	27	-	-	5.2	2.5	1.6	36	51	49	<0.01	0.1
SRT-BH048	SRT_BH048	6/09/2018	Normal	616629	-	-	-	-	<0.005	<10	130	-	-	19	6.2	2.7	56	34	47	<0.01	0.09
SRT-BH048	SRT_BH048	25/10/2018	Normal	624838	<0.05	-	-	-	<0.005	<10	<20	-	-	3.7	1.8	1.6	39	34	48	<0.01	0.12
SRT_BH052	SRT_BH052	26/11/2018	Normal	629922	-	-	-	-	<0.005	<10	73	-	-	18	3.7	1	40	41	27	<0.01	9.2
SRT_BH052	SRT_BH052	18/12/2018	Normal	634274	<0.05	-	-	-	<0.005	<10	35	-	-	17	4.1	1.1	38	43	18	<0.01	10
SRT_BH052	SRT_BH052	17/01/2019	Normal	636542	<0.05	-	-	-	0.02	<10	47	-	-	18	4.5	1	39	42	27	<0.01	9.1
SRT_BH052	SRT_BH052	20/02/2019	Normal	641720	<0.05	-	-	-	<0.005	61	130	-	-	14	3.6	1.6	60	42	28	<0.01	6.2
SRT_BH052	SRT_BH052	16/04/2019	Normal	651825	<0.5	-	-	-	<0.005	90	140	-	-	3	1.5	1.7	130	45	21	<0.01	5.2
SRT_BH052	SRT_BH052	14/05/2019	Normal	656080	<0.05	7.7	230	110	<0.005	<10	90	-	-	23	5.2	1.5	47	56	26	<0.01	8.3
SRT_BH052	SRT_BH052	7/06/2019	Normal	660130	<0.5	8.1	250	550	<0.005	<10	140	-	-	37	6.9	1.3	48	39	29	<0.01	6.4
SRT_BH052	SRT_BH052	30/08/2019	Normal	674722	<0.05	7.8	330	160	<0.005	<10	110	-	-	36	6.8	1.8	45	38	30	<0.01	6.7
SRT_BH052	SRT_BH052	27/09/2019	Normal	679636	<0.05	7.8	250	58	<0.005	<10	140	-	-	26	5.7	1.2	41	38	33	<0.01	6.8
SRT-BH052	SRT_BH052	25/10/2018	Normal	624838	<0.05	-	-	-	<0.005	<10	38	-	-	14	3.7	1	41	22	20	<0.01	10
SRT-BH052	SRT_BH052	31/07/2019	Normal	669059	<0.05	7.6	270	100	0.006	<10	110	-	-	30	6.3	1.6	47	42	29	<0.01	6.9

Appendix B
Table B2 Groundwater sample analytical results (September 2018 to September 2019)

	Iron speciation	Inorganics				Acidity & Alkalinity				Major Ions						Nutrients	
	Ferrous Iron	pH (Lab)	Total Dissolved Solids	Total Suspended Solids	Cyanide (Total)	Alkalinity (Carbonate as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium	Magnesium	Potassium	Sodium	Chloride	Sulfate	Ammonia as N	Nitrate (as N)
	mg/L	pH Units	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
EQL	0.05	0.1	5	1	0.005	10	20	20	20	0.5	0.5	0.5	0.5	1	2	0.01	0.02
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											0.91	
NHMRC Recreational Guidelines 2008 - Health					*0.8*										*5000*		
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domestic)		**7-10**			**1**												
Field_ID	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Lab_Report_Number**													
SRT-BH053	SRT_BH053	6/09/2018	Normal	616629	-	-	-	-	<0.005	<10	72	-	-	6.3	6.1	2.6	37	32	28	<0.01	<0.02
SRT-BH053	SRT_BH053	25/10/2018	Normal	624838	<0.05	-	-	-	<0.005	<10	52	-	-	5.1	4.9	2.5	33	26	27	<0.01	0.39
SRT_BH059	SRT_BH059	26/11/2018	Normal	629922	-	-	-	-	<0.005	<10	210	-	-	58	7.4	5.5	9	34	13	<0.01	2.3
SRT_BH059	SRT_BH059	17/12/2018	Normal	634274	0.8	-	-	-	<0.005	<10	170	-	-	70	5.7	7.6	11	10	24	<0.01	7.9
SRT_BH059	SRT_BH059	18/01/2019	Normal	636542	<0.05	-	-	-	0.017	<10	170	-	-	64	6.1	5.9	9.5	8.1	13	<0.01	2.8
SRT_BH059	SRT_BH059	20/02/2019	Normal	641720	<0.05	-	-	-	<0.005	<10	170	-	-	69	7.7	6.7	14	11	12	<0.01	2.5
SRT_BH059	SRT_BH059	17/04/2019	Normal	651825	<0.5	-	-	-	<0.005	<10	200	-	-	49	6	5.8	8.2	9.7	15	<0.01	2.5
SRT_BH059	SRT_BH059	15/05/2019	Normal	656080	<0.05	8.1	270	21	<0.005	<10	210	-	-	65	6.9	7.1	11	22	27	<0.01	3.2
SRT_BH059	SRT_BH059	7/06/2019	Normal	660130	<0.5	7.7	230	8.9	<0.005	<10	210	-	-	72	7.4	9	13	18	18	<0.01	5.2
SRT_BH059	SRT_BH059	30/08/2019	Normal	674722	<0.05	7.9	290	13	<0.005	<10	170	-	-	60	6.4	6.7	11	8	15	<0.01	3.5
SRT_BH059	SRT_BH059	27/09/2019	Normal	679636	<0.05	8	200	120	<0.005	<10	190	-	-	60	6.6	5.7	11	10	13	<0.01	3.2
SRT-BH059	SRT_BH059	25/10/2018	Normal	624838	<0.05	-	-	-	<0.005	<10	180	-	-	63	7.9	6.6	12	13	17	<0.01	3.5
SRT-BH059	SRT_BH059	31/07/2019	Normal	669059	<0.05	7.8	270	8.3	<0.005	<10	200	-	-	62	9.4	6.6	13	26	17	<0.01	3.1
QA01	SRT_BH063	17/12/2018	Field_D	634274	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH063	17/01/2019	Field_D	636542	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	27/11/2018	Interlab_D	ES1835581	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	21/02/2019	Interlab_D	ES1905610	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_BH063	SRT_BH063	26/11/2018	Normal	629922	-	-	-	-	<0.005	<10	320	-	-	48	31	5	63	68	52	<0.01	0.1
SRT_BH063	SRT_BH063	17/12/2018	Normal	634274	0.39	-	-	-	<0.005	<10	290	-	-	58	33	6.4	75	76	56	<0.01	0.24
SRT_BH063	SRT_BH063	17/01/2019	Normal	636542	0.05	-	-	-	0.018	<10	290	-	-	57	32	5.4	70	68	52	<0.01	0.13
SRT_BH063	SRT_BH063	21/02/2019	Normal	641720	0.05	-	-	-	<0.005	<10	250	-	-	51	33	5.8	73	71	61	<0.01	0.13
SRT_BH063	SRT_BH063	18/04/2019	Normal	651825	<0.5	-	-	-	<0.005	<10	310	-	-	54	36	6.1	70	74	58	<0.01	0.1
SRT_BH063	SRT_BH063	15/05/2019	Normal	656080	<0.05	8.2	460	20	<0.005	<10	340	-	-	50	33	5.7	62	89	49	<0.01	<0.02
SRT_BH063	SRT_BH063	7/06/2019	Normal	660130	<0.5	7.4	360	41	<0.005	<10	310	-	-	55	30	6.8	71	77	48	<0.01	0.4
SRT_BH063	SRT_BH063	28/08/2019	Normal	674722	<0.05	7.8	470	56	<0.005	<10	310	-	-	55	35	5.8	68	66	50	<0.01	0.34
SRT-BH063	SRT_BH063	6/09/2018	Normal	616629	-	-	-	-	<0.005	<10	330	-	-	66	38	5.8	82	72	45	<0.01	0.15
SRT-BH063	SRT_BH063	25/10/2018	Normal	624838	<0.05	-	-	-	<0.005	<10	270	-	-	50	30	5.5	68	53	53	<0.01	0.09
SRT-BH063	SRT_BH063	29/07/2019	Normal	669059	<0.05	**7**	460	33	<0.005	<10	300	-	-	54	35	5.7	68	66	51	<0.01	0.07
SRT-BH064	SRT_BH064	6/09/2018	Normal	616629	-	-	-	-	0.028	34	46	-	-	5.7	0.7	18	63	23	58	<0.01	2.3
QA01	SRT_BH082	25/10/2018	Field_D	624838	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH082	26/11/2018	Field_D	629922	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_BH082	SRT_BH082	26/11/2018	Normal	629922	-	-	-	-	<0.005	<10	<20	-	-	2.3	3.6	1.1	25	38	31	<0.01	0.36
SRT-BH082	SRT_BH082	25/10/2018	Normal	624838	0.16	-	-	-	<0.005	<10	<20	-	-	2.9	4	1.3	27	16	36	<0.01	0.34
QA01	SRT_CBH001	6/09/2018	Field_D	616629	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_CBH001	SRT_CBH001	26/11/2018	Normal	629922	-	-	-	-	<0.005	<10	<20	-	-	6.6	4.9	1.6	21	35	32	<0.01	7.8
SRT-CBH001	SRT_CBH001	6/09/2018	Normal	616629	-	-	-	-	<0.005	<10	22	-	-	8.7	6.8	1.8	24	17	34	<0.01	9.2
SRT-CBH001	SRT_CBH001	25/10/2018	Normal	624838	<0.05	-	-	-	<0.005	<10	<20	-	-	5.9	4.4	1.6	24	17	32	<0.01	7.1
SRT-CBH007	SRT_CBH007	6/09/2018	Normal	616629	-	-	-	-	0.012	<10	<20	-	-	1.4	3	1.7	25	9.7	46	<0.01	1.9
QA02	SRT_CBH015	17/12/2018	Interlab_D	ES1838345	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_CBH015	18/01/2019	Interlab_D	ES1901871	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	SRT_CBH015	31/07/2019	Field_D	669059	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	SRT_CBH015	30/08/2019	Field_D	674722	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_CBH015	SRT_CBH015	26/11/2018	Normal	629922	-	-	-	-	<0.005	<10	30	-	-	2.9	5.3	3.8	24	11	45	<0.01	3.5
SRT_CBH015	SRT_CBH015	17/12/2018	Normal	634274	<0.05	-	-	-	<0.005	<10	33	-	-	3.4	5	3.6	28	12	52	<0.01	3.7
SRT_CBH015	SRT_CBH015	18/01/2019	Normal	636542	0.05	-	-	-	0.019	<10	30	-	-	3.2	5.4	3.4	24	12	47	<0.01	3.1
SRT_CBH015	SRT_CBH015	20/02/2019	Normal	641720	0.05	-	-	-	<0.005	<10	30	-	-	2.5	4.4	3.1	23	13	49	<0.01	3
SRT_CBH015	SRT_CBH015	17/04/2019	Normal	651825	<0.5	-	-	-	<0.005	<10	39	-	-	4	5.8	3.9	30	16	52	<0.01	3.5
SRT_CBH015	SRT_CBH015	15/05/2019	Normal	656080	<0.05	**6.5**	140	1.7	<0.005	<10	34	-	-	2.7	5.3	3.5	29	13	48	0.03	3
SRT_CBH015	SRT_CBH015	7/06/2019	Normal	660130	<0.5	**6.1**	96	1.6	<0.005	<10	26	-	-	2.2	4.8	3.3	27	29	47	0.03	3.3
SRT_CBH015	SRT_CBH015	30/08/2019	Normal	674722	<0.05	**6.3**	180	10	<0.005	<10	25	-	-	2.7	5.7	4	23	9.5	49	<0.01	2.3
SRT_CBH015	SRT_CBH015	27/09/2019	Normal	679636	<0.05	**6.3**	120	5.1	<0.005	<10	28	-	-	2.7	5.1	3.2	24	10	47	<0.01	2.7
SRT-CBH015	SRT_CBH015	7/09/2018	Normal	616629	-	-	-	-	<0.005	<10	32	-	-	4	5.7	3.8	27	11	79	<0.01	4.3
SRT-CBH015	SRT_CBH015	25/10/2018	Normal	624838	<0.05	-	-	-	<0.005	<10	49	-	-	3.1	4.8	3.2	35	9.8	49	<0.01	2.7
SRT-CBH015	SRT_CBH015	31/07/2019	Normal	669059	<0.05	**6**	130	5.1	<0.005	<10	22	-	-	2.6	5.7	3.8	22	37	42	<0.01	3.2
QA01	SRT_CBH017	20/02/2019	Field_D	641720	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	SRT_CBH017	27/09/2019	Field_D	679636	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_CBH017	SRT_CBH017	26/11/2018	Normal	629922	-	-	-	-	<0.005	<10	84	-	-	15	6.7	2.7	13	16	18	<0.01	0.38
SRT_CBH017	SRT_CBH017	17/12/2018	Normal	634274	<0.05	-	-	-	<0.005	<10	42	-	-	19	9	3.2	17	11	17	<0.01	2.5
SRT_CBH017	SRT_CBH017	18/01/2019	Normal	636542	<0.05	-	-	-	0.017	<10	44	-	-	13	6.7	2.7	12	7.9	12	<0.01	1.9
SRT_CBH017	SRT_CBH017	20/02/2019	Normal	641720	<0.05	-	-	-	<0.005	<10	32	-	-	8.7	5	2.7	9.6	15	16	<0.01	3.1
SRT_CBH017	SRT_CBH017	17/04/2019	Normal	651825	<0.5	-	-	-	<0.005	<10	44	-	-	9.6	4.9	3.2	9.2	8.8	15	<0.01	3.1
SRT_CBH017	SRT_CBH017	15/05/2019	Normal	656080	<0.05	**6.7**	88	16	<0.005	<10	30	-	-	10	6.8	3	11	19	17	<0.01	4.4
SRT_CBH017	SRT_CBH017	7/06/2019	Normal	660130	<0.5	**6.8**	81	8.8	<0.005	<10	52	-	-	7.1	6.5	3.1	15	12	19	0.03	1.9
SRT_CBH017	SRT_CBH017	30/08/2019	Normal	674722	<0.05	**7**	180	3.8	<0.005	<10	67	-	-	12	9.6	3.4	19	13	26	<0.01	0.32
SRT_CBH017	SRT_CBH017	27/09/2019	Normal	679636	0.05	7.1	120	2	<0.005	<10	66	-	-	12	9.6	3.1	20	16	30	<0.01	0.38
SRT-CBH017	SRT_CBH017	7/09/2018	Normal	616629	-	-	-	-	<0.005	<10	78	-	-	16	8.1	3.5	19	9.7	21	<0.01	0.2
SRT-CBH017	SRT_CBH017	25/10/2018	Normal	624838	<0.05	-	-	-	<0.005	<10	65	-	-	13	6	2.9	14	8.8	19	<0.01	0.62
SRT-CBH017	SRT_CBH017	31/07/2019	Normal	669059	<0.05	**6.8**	130	79	<0.005	<10	59	-	-	11	9.8	3.4	20	50	23	<0.01	0.48
Statistical Summary																					
Number of Results		118	76	76	76	137	137	137	3	3	137	137	137	137	137	137	137	134			
Number of Detects		53	76	76	76	23	7	124	0	3	137	135	137	137	137	134	33	97			
Minimum Concentration		<0.05	3.5	81	1.6	<0.005	<10	<20	<20	35	1.4	<0.5	0.5	8.2	7.9	<5	<0.01	<0.02			
Minimum Detect		0.05	3.5	81	1.6	0.005	11	20	ND	35	1.4	0.7	0.5	8.2	7.9	7.6	0.01	0.03			
Maximum Concentration		19	8.5	1100	42000	0.092	90	450	<20	310	460	52	160	150	500	940	1	25			
Maximum Detect		19	8.5	1100	42000	0.092	90	450	ND	310	460	52	160	150	500	940	1	25			
Average Concentration		1.7	7.1	346	1035	0.0054	7.4	125	10	139	34	13	6.1	57	60	63	0.032	3.6			
Median Concentration		0.205	7.3	290	69.5	0.0025	5	97	10	71	18	7.3	3.3	45	38	37	0.005	0.44			
Standard Deviation		3.4	0.98	184	4916	0.0096	12	104	0	149	58	12	16	39	65	113	0.11	6.1			
Number of Guideline Exceedances		0	32	0	0	137	0	0	0	0	0	0	0	0	0	0	1	0			
Number of Guideline Exceedances(Detects Only)		0	32	0	0	23	0	0	0	0	0	0	0	0	0	0	1	0			

Appendix B
Table B2 Groundwater sample analytical results (September 2018 to September 2019)

					Metals									BTEXN							
					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
					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
EQL					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
NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand																					
2-4m														5000	NL	NL			NL	NL	
4-8m														5000	NL	NL			NL	NL	
>8m														5000	NL	NL			NL	NL	
NEPM 2013 Table 1C GILs, Marine Waters						0.0007	0.0044	0.0013	0.0044		0.0001	0.007	0.015	500						50	
NHMRC Recreational Guidelines 2008 - Health					*0.1*	*0.02*		*20*	*0.1*	*5*	*0.01*	*0.2*		*10*	*8000*	*3000*			*6000*		
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domestic)					**1**	**1**	**3**	**5**	**2**	**10**	**0.03**	**3**	**5**	**100**	**500**	**1000**			**1000**		
Field_ID	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Lab_Report_Numbe**																	
CSM_BH02	CSM_BH02	16/04/2019	Normal	651825	<0.001	<0.0002	<0.001	<0.001	<0.001	0.2	<0.0001	0.012	0.006	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH02	CSM_BH02	14/05/2019	Normal	656080	<0.001	<0.0002	<0.001	<0.001	<0.001	0.55	<0.0001	0.012	0.01	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH02	CSM_BH02	6/06/2019	Normal	660130	0.001	<0.0002	<0.001	<0.001	<0.001	0.33	<0.0001	0.009	0.016	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH02	CSM_BH02	30/07/2019	Normal	669059	<0.001	<0.0002	<0.001	<0.001	<0.001	0.13	<0.0001	0.004	0.007	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH02	CSM_BH02	29/08/2019	Normal	674722	<0.001	<0.0002	<0.001	0.002	<0.001	0.24	<0.0001	0.006	0.007	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH02	CSM_BH02	26/09/2019	Normal	679636	0.002	<0.0002	<0.001	<0.001	<0.001	0.26	<0.0001	0.015	0.011	<1	1	<1	<1	<2	<3	<10	-
CSM_BH04	CSM_BH04	16/04/2019	Normal	651825	<0.001	<0.0002	<0.001	<0.001	<0.001	0.36	<0.0001	0.01	<0.005	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH04	CSM_BH04	13/05/2019	Normal	656080	<0.001	<0.0002	<0.001	0.004	<0.001	0.3	<0.0001	0.029	0.29	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH04	CSM_BH04	11/06/2019	Normal	660130	<0.001	<0.0002	<0.001	<0.001	<0.001	0.44	<0.0001	0.023	0.051	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH04	CSM_BH04	30/07/2019	Normal	669059	<0.001	<0.0002	<0.001	<0.001	<0.001	0.42	<0.0001	0.018	0.025	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH04	CSM_BH04	29/08/2019	Normal	674722	<0.001	<0.0002	<0.001	0.003	<0.001	0.45	<0.0001	0.037	0.1	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH04	CSM_BH04	26/09/2019	Normal	679636	<0.001	<0.0002	<0.001	<0.001	<0.001	0.18	<0.0001	0.002	<0.005	<1	2	<1	<1	<2	<3	<10	-
CSM_BH05	CSM_BH05	17/04/2019	Normal	651825	0.002	<0.0002	<0.001	<0.001	<0.001	0.36	<0.0001	0.011	0.011	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH05	CSM_BH05	13/05/2019	Normal	656080	0.001	<0.0002	<0.001	<0.001	<0.001	0.37	<0.0001	0.008	0.027	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH05	CSM_BH05	11/06/2019	Normal	660130	<0.001	<0.0002	<0.001	0.001	<0.001	0.44	<0.0001	0.005	0.023	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH05	CSM_BH05	29/07/2019	Normal	669059	<0.001	<0.0002	<0.001	<0.001	<0.001	0.45	<0.0001	0.011	0.024	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH06	CSM_BH06	18/04/2019	Normal	651825	<0.001	<0.0002	<0.001	0.009	<0.001	0.28	<0.0001	0.014	0.032	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH06	CSM_BH06	14/05/2019	Normal	656080	0.002	<0.0002	<0.001	<0.001	<0.001	0.25	<0.0001	0.011	0.054	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH06	CSM_BH06	6/06/2019	Normal	660130	0.004	<0.0002	<0.001	<0.001	<0.001	0.28	<0.0001	0.02	0.05	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH06	CSM_BH06	30/07/2019	Normal	669059	<0.001	<0.0002	<0.001	<0.001	<0.001	0.21	<0.0001	0.019	0.035	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH06	CSM_BH06	28/08/2019	Normal	674722	<0.001	<0.0002	<0.001	0.01	<0.001	0.23	<0.0001	0.019	0.086	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH06	CSM_BH06	26/09/2019	Normal	679636	<0.001	<0.0002	0.007	0.043	<0.001	0.17	<0.0001	0.036	0.094	<1	1	<1	<1	<2	<3	<10	-
QC02	CSM_BH06	14/05/2019	Field_D	656080	0.002	<0.0002	<0.001	<0.001	<0.001	-	<0.0001	0.011	0.053	<1	<1	<1	<1	<2	<3	<10	-
QC04	CSM_BH06	8/06/2019	Field_D	660130	0.004	<0.0002	<0.001	<0.001	<0.001	-	<0.0001	0.02	0.052	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH08	CSM_BH08	18/04/2019	Normal	651825	<0.001	<0.0002	<0.001	<0.001	<0.001	0.34	<0.0001	0.007	0.02	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH08	CSM_BH08	15/05/2019	Normal	656080	<0.001	<0.0002	<0.001	<0.001	<0.001	0.3	<0.0001	0.003	0.015	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH08	CSM_BH08	6/06/2019	Normal	660130	<0.001	<0.0002	<0.001	<0.001	<0.001	0.37	<0.0001	0.006	0.041	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH08	CSM_BH08	30/07/2019	Normal	669059	<0.001	<0.0002	<0.001	<0.001	<0.001	0.34	<0.0001	0.021	0.011	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH08	CSM_BH08	29/08/2019	Normal	674722	<0.001	<0.0002	<0.001	0.021	<0.001	0.4	<0.0001	0.016	0.16	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH08	CSM_BH08	26/09/2019	Normal	679636	<0.001	<0.0002	<0.001	0.001	<0.001	0.32	<0.0001	0.002	0.014	<1	1	<1	<1	<2	<3	<10	-
QC02	CSM_BH08	18/04/2019	Field_D	651825	<0.001	<0.0002	<0.001	<0.001	<0.001	-	<0.0001	0.007	0.015	<1	<1	<1	<1	<2	<3	<10	-
QC03	CSM_BH08	6/06/2019	Interlab_D	ES1917968	<0.001	<0.0001	<0.001	<0.001	<0.001	-	<0.0001	0.006	0.034	<1	<2	<2	<2	<2	<2	<5	<1
CSM_BH09S	CSM_BH09S	17/04/2019	Normal	651825	<0.001	<0.0002	<0.001	<0.001	<0.001	0.83	<0.0001	0.009	0.042	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH09S	CSM_BH09S	13/05/2019	Normal	656080	<0.001	<0.0002	<0.001	<0.001	<0.001	0.54	<0.0001	0.004	0.019	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH09S	CSM_BH09S	11/06/2019	Normal	660130	<0.001	<0.0002	<0.001	<0.001	<0.001	0.78	<0.0001	0.009	0.054	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH09S	CSM_BH09S	29/07/2019	Normal	669059	<0.001	<0.0002	<0.001	0.002	<0.001	0.64	<0.0001	0.006	0.036	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH09S	CSM_BH09S	28/08/2019	Normal	674722	<0.001	<0.0002	<0.001	0.001	<0.001	0.65	<0.0001	0.008	0.045	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH09S	CSM_BH09S	25/09/2019	Normal	679636	<0.001	<0.0002	<0.001	0.002	<0.001	0.79	<0.0001	0.009	0.056	<1	1	<1	<1	<2	<3	<10	-
QC01	CSM_BH09S	17/04/2019	Interlab_D	ES1912362	<0.001	<0.0001	<0.001	<0.001	<0.001	-	<0.0001	0.008	0.042	<1	<2	<2	<2	<2	<2	<5	<1
QC01	CSM_BH09S	13/05/2019	Interlab_D	ES1914810	<0.001	<0.0001	<0.001	<0.001	<0.001	-	<0.0001	0.005	0.018	<1	<2	<2	<2	<2	<2	<5	<1
QC01	CSM_BH09S	29/07/2019	Interlab_D	ES1924197	<0.001	<0.0001	<0.001	0.005	<0.001	-	<0.0001	0.007	0.04	<1	<2	<2	<2	<2	<2	<5	<1
QC01	CSM_BH09S	28/08/2019	Interlab_D	EM1914568	<0.001	<0.0001	<0.001	<0.001	<0.001	-	<0.0001	0.009	0.041	<1	<2	<2	<2	<2	<2	<5	<1
QC01	CSM_BH09S	25/09/2019	Interlab_D	ES1931406	<0.001	<0.0001	<0.001	0.001	<0.001	-	<0.0001	0.008	0.048	<1	<2	<2	<2	<2	<2	<5	<1
CSM_BH10S	CSM_BH10S	16/04/2019	Normal	651825	<0.001	<0.0002	<0.001	0.002	<0.001	0.52	<0.0001	0.002	0.006	<1	1	<1	<1	<2	<3	<10	-
CSM_BH10S	CSM_BH10S	13/05/2019	Normal	656080	<0.001	<0.0002	<0.001	0.003	<0.001	0.43	<0.0001	0.002	0.011	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH10S	CSM_BH10S	11/06/2019	Normal	660130	<0.001	<0.0002	<0.001	<0.001	<0.001	0.49	<0.0001	0.001	0.006	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH10S	CSM_BH10S	30/07/2019	Normal	669059	<0.001	<0.0002	<0.001	0.003	<0.001	0.41	<0.0001	0.002	0.011	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH10S	CSM_BH10S	29/08/2019	Normal	674722	<0.001	<0.0002	<0.001	0.004	<0.001	0.48	<0.0001	0.002	0.014	<1	<1	<1	<1	<2	<3	<10	-
CSM_BH10S	CSM_BH10S	25/09/2019	Normal	679636	<0.001	<0.0002	<0.001	0.001	<0.001	0.51	<0.0001	0.002	0.009	<1	1	<1	<1	<2	<3	<10	-
GASW_BH10	GASW_BH10	5/06/2019	Normal	659250	0.002	<0.0002	<0.001	<0.001	<0.001	0.049	<0.0001	0.007	<0.005	2	<1	<1	<1	<2	<3	<10	-
GASW_BH10	GASW_BH10	30/07/2019	Normal	669059	<0.001	<0.0002	<0.001	<0.001	<0.001	0.25	<0.0001	0.042	<0.005	<1	<1	<1	<1	<2	<3	<10	-
GASW_BH10	GASW_BH10	28/08/2019	Normal	674722	0.002	<0.0002	<0.001	<0.001	<0.001	0.32	<0.0001	0.043	0.029	<4	<4	<4	<4	<8	<12	<40	-
GASW_BH10	GASW_BH10	26/09/2019	Normal	679636	0.001	<0.0002	<0.001	<0.001	<0.001	0.48	<0.0001	0.026	0.015	<1	2	<1	<1	<2	<3	<10	-
GASW_BH11	GASW_BH11	5/06/2019	Normal	659250	<0.001	<0.0002	<0.001	<0.001	<0.001	0.2	<0.0001	0.002	0.022	<1	<1	<1	<1	<2	<3	<10	-
GASW_BH11	GASW_BH11	30/07/2019	Normal	669059	<0.001	<0.0002	<0.001	<0.001	<0.001	0.2	<0.0001	0.002	0.007	<1	<1	<1	<1	<2	<3	<10	-
GASW_BH11	GASW_BH11	28/08/2019	Normal	674722	<0.001	<0.0002	<0.001	0.003	<0.001	0.23	<0.0001	0.002	0.016	<1	<1	<1	<1	<2	<3	<10	-
GASW_BH11	GASW_BH11	25/09/2019	Normal	679636	<0.001	<0.0002	<0.001	0.003	<0.001	0.25	<0.0001	0.002	0.016	<1	1	<1	<1	<2	<3	<10	-
QC02	GASW_BH11	5/06/2019	Field_D	659250	<0.001	<0.0002	<0.001	<0.001	<0.001	-	<0.0001	0.002	0.022	<1	<1	<1	<1	<2	<3	<10	-
GASW_BH23	GASW_BH23	25/09/2019	Normal	679636	0.004	<0.0002	<0.001	0.002	<0.001	0.49	<0.0001	0.004	0.55	***1900***	230	30	25	44	68	<10	-
GASW_BH25A	GASW_BH25A	25/09/2019	Normal	679636	0.006	<0.0002	<0.001	0.003	<0.001	0.14	<0.0001	<0.001	<0.005	***3600***	**1200**	53	77	140	220	<40	-
GASW_BH7	GASW_BH7	5/06/2019	Normal	659250	<0.001	<0.0002	<0.001	<0.001	<0.001	0.3	<0.0001	0.002	0.039	1	<1	<1	<1	<2	<3	<10	-
GASW_BH7	GASW_BH7	30/07/2019	Normal	669059	<0.001	<0.0002	<0.001	0.007	0.001	0.12	<0.0001	0.003	0.059	9	<1	<1	<1	<2	<3	<10	-
GASW_BH7	GASW_BH7	28/08/2019	Normal	674722	<0.001	<0.0002	<0.001	0.019	0.002	0.13	<0.0001	0.006	0.078	*27*	<1	<1	<1	<2	<3	<10	-
GASW_BH7	GASW_BH7	25/09/2019	Normal	679636	<0.001	<0.0002	<0.001	0.007	0.003	0.11	<0.0001	0.002	0.064	*70*	6	<1	1	<2	<3	<10	-
QC01	GASW_BH7	5/06/2019	Interlab_D	ES1917381	<0.001	0.0001	0.001	<0.001	<0.001	-	<0.0001	0.002	0.04	<1	<2	<2	<2	<2	<2	<5	<1
QA02	SRT_BH039	7/09/2018	Interlab_D	ES1826658	<0.001	<0.0001	0.003	0.014	<0.001	-	<0.0001	0.002	0.013	<1	<2	<2	<2	<2	<2	<5	<1
QA02	SRT_BH039	26/10/2018	Interlab_D	ES1832040	<0.001	<0.0001	0.001	0.002	<0.001	-	<0.0001	0.002	<0.005	<1	<2	<2	<2	<2	<2	<5	<1
SRT-BH039	SRT_BH039	7/09/2018	Normal	616629	<0.001	<0.0002	0.003	0.03	0.003	-	<0.0001	0.004	0.047	<1	<1	<1	<1	<2	<3	<10	-
SRT-BH039	SRT_BH039	25/10/2018	Normal	624838	<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	-
SRT_BH047	SRT_BH047	26/11/2018	Normal	629922	<0.001	<0.0002	<0.001	0.022	0.002	-	<0.0001	0.005	0.039	<1	<1	<1	<1	<2	<3	<10	-
SRT_BH047	SRT_BH047	18/12/2018	Normal	634274	<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	-
SRT_BH047	SRT_BH047	17/01/2019	Normal	636542	<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	-
SRT_BH047	SRT_BH047	20/02/2019	Normal	641720	<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	-
SRT_BH047	SRT_BH047	16/04/2019	Normal	651825	<0.001	<0.0002	<0.001	0.002	<0.001	0.023	<0.0001	0.001	0.013	<1	7	<1	<1	<2	<3	<10	-
SRT_BH047	SRT_BH047	14/05/2019	Normal	656080	<0.001	<0.0002	<0.001	0.002	<0.001	<0.005	<0.0001	<0.001	<0.005	<1	<1	<1	<1	<2	<3	<10	-
SRT_BH047	SRT_BH047	7/06/2019	Normal	660130	<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	-
SRT_BH047	SRT_BH047	30/08/2019	Normal	674722	<0.001	<0.0002	<0.001	0.003	<0.001	<0.005	<0.0001	<0.001	0.008	<1	<1	<1	<1	<2	<3	<10	-
SRT_BH047	SRT_BH047	27/09/2019	Normal	679636	<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	-
SRT-BH047	SRT_BH047	6/09/2018	Normal	616629	<0.001	<0.0002	<0.001	0.018	<0.001	-	<0.0001	0.003	0.021	<1	<1	<1	<1	<2	<3	<10	-
SRT-BH047	SRT_BH047	25/10/2018	Normal	624838	<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	-
SRT-BH047	SRT_BH047	31/07/2019	Normal	669059	<0.001	<0.0002	<0.001	<0.001	<0.001	0.018	<0.0001	0.001	0.009	<1	<1	<1	<1	<2	<3	<10	-
SRT_BH048	SRT_BH048	26/11/2018	Normal	629922	<0.001	<0.0002	<0.001	0.045	0.005	-	<0.0001	0.011	0.086	<1	<1	<1	<1	<2	<3	<10	-
SRT-BH048	SRT_BH048	6/09/2018	Normal	616629	<0.001	<0.0002	<0.001	0.045	0.004	-	<0.0001	0.011	0.066	<1	<1	<1	<1	<2	<3	<10	-
SRT-BH048	SRT_BH048	25/10/2018	Normal	624838	<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	-
SRT_BH052	SRT_BH052	26/11/2018	Normal	629922	<0.001	<0.0002	<0.001	0.022	0.003	-	<0.0001	0.006	0.085	<1	<1	<1	<1	<2	<3	<10	-
SRT_BH052	SRT_BH052	18/12/2018	Normal	634274	<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	-
SRT_BH052	SRT_BH052	17/01/2019	Normal	636542	<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	-
SRT_BH052	SRT_BH052	20/02/2019	Normal	641720	<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	-
SRT_BH052	SRT_BH052	16/04/2019	Normal	651825	<0.001	<0.0002	<0.001	0.002	<0.001	0.005	<0.0001	<0.001	<0.005	<1	14	<1	<1	<2	<3	<10	-
SRT_BH052	SRT_BH052	14/05/2019	Normal	656080	<0.001	<0.0002	<0.001	0.002	<0.001	<0.005	<0.0001	<0.001	<0.005	<1	<1	<1	<1	<2	<3	<10	-
SRT_BH052	SRT_BH052	7/06/2019	Normal	660130	<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	-
SRT_BH052	SRT_BH052	30/08/2019	Normal	674722	<0.001	<0.0002	0.002	0.003	<0.001	<0.005	<0.0001	<0.001	0.01	<1	<1	<1	<1	<2	<3	<10	-
SRT_BH052	SRT_BH052	27/09/2019	Normal	679636	<0.001	<0.0002	<0.001	0.002	<0.001	<0.005	<0.0001	<0.001	0.007	<1	1	<1	<1	<2	<3	<10	-
SRT-BH052	SRT_BH052	25/10/2018	Normal	624838	<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	-
SRT-BH052	SRT_BH052	31/07/2019	Normal	669059	<0.001	<0.0002	<0.001	0.001	<0.001	<0.005	<0.0001	0.001	0.015	<1	<1	<1	<1	<2	<3	<10	-

Appendix B
Table B2 Groundwater sample analytical results (September 2018 to September 2019)

					Metals									BTEXN							
					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
					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
EQL					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
NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand																					
2-4m														5000	NL	NL			NL	NL	
4-8m														5000	NL	NL			NL	NL	
>8m														5000	NL	NL			NL	NL	
NEPM 2013 Table 1C GILs, Marine Waters						0.0007	0.0044	0.0013	0.0044		0.0001	0.007	0.015	500						50	
NHMRC Recreational Guidelines 2008 - Health					*0.1*	*0.02*		*20*	*0.1*	*5*	*0.01*	*0.2*		*10*	*8000*	*3000*			*6000*		
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domestic)					**1**	**1**	**3**	**5**	**2**	**10**	**0.03**	**3**	**5**	**100**	**500**	**1000**			**1000**		
Field_ID	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Lab_Report_Numbe**																	
SRT-BH053	SRT_BH053	6/09/2018	Normal	616629	<0.001	<0.0002	<0.001	0.23	0.014	-	<0.0001	0.029	0.32	<1	<1	<1	<1	<2	<3	<10	-
SRT-BH053	SRT_BH053	25/10/2018	Normal	624838	<0.001	<0.0002	<0.001	0.004	<0.001	1	<0.0001	0.046	0.022	<1	<1	<1	<1	<2	<3	<10	-
SRT_BH059	SRT_BH059	26/11/2018	Normal	629922	<0.001	<0.0002	0.001	0.042	0.003	-	<0.0001	0.008	0.077	<1	<1	<1	<1	<2	<3	<10	-
SRT_BH059	SRT_BH059	17/12/2018	Normal	634274	<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	-
SRT_BH059	SRT_BH059	18/01/2019	Normal	636542	<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	-
SRT_BH059	SRT_BH059	20/02/2019	Normal	641720	<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	-
SRT_BH059	SRT_BH059	17/04/2019	Normal	651825	<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	-
SRT_BH059	SRT_BH059	15/05/2019	Normal	656080	<0.001	<0.0002	<0.001	0.006	<0.001	<0.005	<0.0001	<0.001	<0.005	<1	<1	<1	<1	<2	<3	<10	-
SRT_BH059	SRT_BH059	7/06/2019	Normal	660130	<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	-
SRT_BH059	SRT_BH059	30/08/2019	Normal	674722	<0.001	<0.0002	0.001	0.028	0.001	<0.005	<0.0001	0.012	0.12	<1	<1	<1	<1	<2	<3	<10	-
SRT_BH059	SRT_BH059	27/09/2019	Normal	679636	<0.001	<0.0002	<0.001	0.007	<0.001	<0.005	<0.0001	<0.001	0.008	<1	1	<1	<1	<2	<3	<10	-
SRT-BH059	SRT_BH059	25/10/2018	Normal	624838	<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	-
SRT-BH059	SRT_BH059	31/07/2019	Normal	669059	<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	-
QA01	SRT_BH063	17/12/2018	Field_D	634274	<0.001	<0.0002	<0.001	0.002	0.003	-	<0.0001	0.004	0.015	<1	<1	<1	<1	<2	<3	<10	-
QA01	SRT_BH063	17/01/2019	Field_D	636542	<0.001	<0.0002	<0.001	0.004	<0.001	-	<0.0001	0.004	0.023	<1	<1	<1	<1	<2	<3	<10	-
QA02	SRT_BH063	27/11/2018	Interlab_D	ES1835581	<0.001	<0.0001	<0.001	0.002	<0.001	-	<0.0001	0.008	0.016	<1	<2	<2	<2	<2	<2	<5	<1
QA02	SRT_BH063	21/02/2019	Interlab_D	ES1905610	0.001	<0.0001	0.001	0.004	<0.001	-	<0.0001	0.007	0.005	<1	<2	<2	<2	<2	<2	<5	<1
SRT_BH063	SRT_BH063	26/11/2018	Normal	629922	<0.001	<0.0002	<0.001	0.027	0.003	-	<0.0001	0.014	0.067	<1	<1	<1	<1	<2	<3	<10	-
SRT_BH063	SRT_BH063	17/12/2018	Normal	634274	<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	-
SRT_BH063	SRT_BH063	17/01/2019	Normal	636542	<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	-
SRT_BH063	SRT_BH063	21/02/2019	Normal	641720	<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	-
SRT_BH063	SRT_BH063	18/04/2019	Normal	651825	<0.001	<0.0002	<0.001	0.055	0.003	0.006	<0.0001	0.018	0.085	<1	<1	<1	<1	<2	<3	<10	-
SRT_BH063	SRT_BH063	15/05/2019	Normal	656080	<0.001	<0.0002	<0.001	0.005	<0.001	<0.005	<0.0001	0.005	0.014	<1	<1	<1	<1	<2	<3	<10	-
SRT_BH063	SRT_BH063	7/06/2019	Normal	660130	<0.001	<0.0002	<0.001	0.002	<0.001	<0.005	<0.0001	0.006	0.036	<1	<1	<1	<1	<2	<3	<10	-
SRT_BH063	SRT_BH063	28/08/2019	Normal	674722	<0.001	<0.0002	<0.001	0.01	<0.001	0.017	<0.0001	0.007	0.032	<1	<1	<1	<1	<2	<3	<10	-
SRT-BH063	SRT_BH063	6/09/2018	Normal	616629	<0.001	<0.0002	<0.001	0.014	<0.001	-	<0.0001	0.02	0.22	<1	<1	<1	<1	<2	<3	<10	-
SRT-BH063	SRT_BH063	25/10/2018	Normal	624838	<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	-
SRT-BH063	SRT_BH063	29/07/2019	Normal	669059	<0.001	<0.0002	<0.001	0.003	<0.001	<0.005	<0.0001	0.009	0.018	<1	<1	<1	<1	<2	<3	<10	-
SRT-BH064	SRT_BH064	6/09/2018	Normal	616629	0.005	<0.0002	<0.001	0.024	0.002	-	<0.0001	0.006	0.032	3	<1	<1	<1	<2	<3	<10	-
QA01	SRT_BH082	25/10/2018	Field_D	624838	<0.001	<0.0002	<0.001	<0.001	<0.001	-	<0.0001	0.001	0.009	<1	<1	<1	<1	<2	<3	<10	-
QA01	SRT_BH082	26/11/2018	Field_D	629922	<0.001	<0.0002	<0.001	0.073	0.013	-	<0.0001	0.01	0.17	<1	<1	<1	<1	<2	<3	<10	-
SRT_BH082	SRT_BH082	26/11/2018	Normal	629922	<0.001	<0.0002	<0.001	0.007	0.002	-	<0.0001	0.002	0.021	<1	<1	<1	<1	<2	<3	<10	-
SRT-BH082	SRT_BH082	25/10/2018	Normal	624838	<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	-
QA01	SRT_CBH001	6/09/2018	Field_D	616629	<0.001	<0.0002	<0.001	0.041	0.003	-	<0.0001	0.012	0.058	<1	<1	<1	<1	<2	<3	<10	-
SRT_CBH001	SRT_CBH001	26/11/2018	Normal	629922	<0.001	<0.0002	<0.001	0.042	0.003	-	<0.0001	0.012	0.094	<1	<1	<1	<1	<2	<3	<10	-
SRT-CBH001	SRT_CBH001	6/09/2018	Normal	616629	<0.001	<0.0002	<0.001	0.003	<0.001	-	<0.0001	0.004	0.012	<1	<1	<1	<1	<2	<3	<10	-
SRT-CBH001	SRT_CBH001	25/10/2018	Normal	624838	<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	-
SRT-CBH007	SRT_CBH007	6/09/2018	Normal	616629	<0.001	<0.0002	<0.001	0.36	0.023	-	<0.0001	0.02	0.48	<1	<1	<1	<1	<2	<3	<10	-
QA02	SRT_CBH015	17/12/2018	Interlab_D	ES1838345	<0.001	0.0001	<0.001	<0.001	<0.001	-	<0.0001	0.01	0.024	<1	<2	<2	<2	<2	<2	<5	<1
QA02	SRT_CBH015	18/01/2019	Interlab_D	ES1901871	<0.001	0.0002	<0.001	0.037	0.004	-	<0.0001	0.012	0.077	<1	<2	<2	<2	<2	<2	<5	<1
QC02	SRT_CBH015	31/07/2019	Field_D	669059	<0.001	<0.0002	<0.001	<0.001	<0.001	-	<0.0001	0.009	0.022	<1	<1	<1	<1	<2	<3	<10	-
QC02	SRT_CBH015	30/08/2019	Field_D	674722	<0.001	<0.0002	<0.001	0.002	<0.001	-	<0.0001	0.009	0.026	<1	<1	<1	<1	<2	<3	<10	-
SRT_CBH015	SRT_CBH015	26/11/2018	Normal	629922	<0.001	<0.0002	<0.001	<0.001	<0.001	-	<0.0001	0.009	0.02	<1	<1	<1	<1	<2	<3	<10	-
SRT_CBH015	SRT_CBH015	17/12/2018	Normal	634274	<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	-
SRT_CBH015	SRT_CBH015	18/01/2019	Normal	636542	<0.001	<0.0002	<0.001	0.002	<0.001	*6*	<0.0001	0.009	0.022	<1	<1	<1	<1	<2	<3	<10	-
SRT_CBH015	SRT_CBH015	20/02/2019	Normal	641720	<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	-
SRT_CBH015	SRT_CBH015	17/04/2019	Normal	651825	<0.001	<0.0002	<0.001	0.001	<0.001	*5.8*	<0.0001	0.01	0.024	<1	<1	<1	<1	<2	<3	<10	-
SRT_CBH015	SRT_CBH015	15/05/2019	Normal	656080	<0.001	<0.0002	<0.001	0.007	<0.001	*5.1*	<0.0001	0.009	0.024	<1	<1	<1	<1	<2	<3	<10	-
SRT_CBH015	SRT_CBH015	7/06/2019	Normal	660130	<0.001	<0.0002	<0.001	<0.001	<0.001	*7.5*	<0.0001	0.01	0.027	<1	<1	<1	<1	<2	<3	<10	-
SRT_CBH015	SRT_CBH015	30/08/2019	Normal	674722	<0.001	<0.0002	<0.001	0.002	<0.001	*6.5*	<0.0001	0.009	0.025	<1	<1	<1	<1	<2	<3	<10	-
SRT_CBH015	SRT_CBH015	27/09/2019	Normal	679636	<0.001	<0.0002	<0.001	0.005	<0.001	*6.8*	<0.0001	0.01	0.034	<1	1	<1	<1	<2	<3	<10	-
SRT-CBH015	SRT_CBH015	7/09/2018	Normal	616629	<0.001	<0.0002	<0.001	0.038	0.004	-	<0.0001	0.013	0.072	<1	<1	<1	<1	<2	<3	<10	-
SRT-CBH015	SRT_CBH015	25/10/2018	Normal	624838	<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	-
SRT-CBH015	SRT_CBH015	31/07/2019	Normal	669059	<0.001	<0.0002	<0.001	<0.001	<0.001	*6.1*	<0.0001	0.009	0.021	<1	1	<1	<1	<2	<3	<10	-
QA01	SRT_CBH017	20/02/2019	Field_D	641720	<0.001	<0.0002	0.002	<0.001	<0.001	-	<0.0001	0.01	0.023	<1	<1	<1	<1	<2	<3	<10	-
QC02	SRT_CBH017	27/09/2019	Field_D	679636	<0.001	<0.0002	<0.001	0.001	<0.001	-	<0.0001	0.002	0.006	<1	1	<1	<1	<2	<3	<10	-
SRT_CBH017	SRT_CBH017	26/11/2018	Normal	629922	<0.001	<0.0002	<0.001	0.12	0.006	-	<0.0001	0.016	0.21	<1	<1	<1	<1	<2	<3	<10	-
SRT_CBH017	SRT_CBH017	17/12/2018	Normal	634274	<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	-
SRT_CBH017	SRT_CBH017	18/01/2019	Normal	636542	<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	-
SRT_CBH017	SRT_CBH017	20/02/2019	Normal	641720	<0.001	<0.0002	<0.001	0.032	0.002	1	<0.0001	0.01	0.033	<1	<1	<1	<1	<2	<3	<10	-
SRT_CBH017	SRT_CBH017	17/04/2019	Normal	651825	<0.001	<0.0002	<0.001	0.001	<0.001	0.65	<0.0001	0.004	0.008	<1	<1	<1	<1	<2	<3	<10	-
SRT_CBH017	SRT_CBH017	15/05/2019	Normal	656080	<0.001	<0.0002	<0.001	0.003	<0.001	0.7	<0.0001	0.004	0.008	<1	<1	<1	<1	<2	<3	<10	-
SRT_CBH017	SRT_CBH017	7/06/2019	Normal	660130	<0.001	<0.0002	<0.001	<0.001	<0.001	*5.1*	<0.0001	0.006	0.017	<1	<1	<1	<1	<2	<3	<10	-
SRT_CBH017	SRT_CBH017	30/08/2019	Normal	674722	<0.001	<0.0002	<0.001	0.005	<0.001	0.38	<0.0001	0.004	0.014	<1	<1	<1	<1	<2	<3	<10	-
SRT_CBH017	SRT_CBH017	27/09/2019	Normal	679636	<0.001	<0.0002	<0.001	0.001	<0.001	0.45	<0.0001	0.002	0.006	<1	1	<1	<1	<2	<3	<10	-
SRT-CBH017	SRT_CBH017	7/09/2018	Normal	616629	<0.001	<0.0002	<0.001	0.038	0.004	-	<0.0001	0.006	0.069	<1	<1	<1	<1	<2	<3	<10	-
SRT-CBH017	SRT_CBH017	25/10/2018	Normal	624838	<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	-
SRT-CBH017	SRT_CBH017	31/07/2019	Normal	669059	<0.001	<0.0002	<0.001	0.002	<0.001	2.1	<0.0001	0.005	0.015	<1	1	<1	<1	<2	<3	<10	-

Statistical Summary

Number of Results	163	163	163	163	163	118	163	163	163	163	163	163	163	163	163	163	163	163	163	13
Number of Detects	15	3	13	108	43	92	0	145	146	8	25	2	3	2	2	0	0			
Minimum Concentration	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.005	<0.0001	<0.001	<0.005	<1	<1	<1	<1	<2	<2	<5	<1			
Minimum Detect	0.001	0.0001	0.001	0.001	0.001	0.005	ND	0.001	0.005	1	1	30	1	44	68	ND	ND			
Maximum Concentration	0.006	0.0002	0.007	0.36	0.023	7.5	<0.0001	0.083	0.55	3600	1200	53	77	140	220	<40	<1			
Maximum Detect	0.006	0.0002	0.007	0.36	0.023	7.5	ND	0.083	0.55	3600	1200	53	77	140	220	ND	ND			
Average Concentration	0.00069	0.000098	0.00061	0.018	0.0015	0.83	0.00005	0.0089	0.049	35	9.6	1.1	1.2	2.1	3.2	5	0.5			
Median Concentration	0.0005	0.0001	0.0005	0.002	0.0005	0.255	0.00005	0.007	0.023	0.5	0.5	0.5	0.5	1	1.5	5	0.5			
Standard Deviation	0.00077	0.000014	0.0006	0.046	0.0029	1.7	0	0.01	0.08	318	96	4.7	6.3	11	18	1.8	0			
Number of Guideline Exceedances	0	0	1	96	10	11	0	83	110	4	1	0	0	0	0	0	0			
Number of Guideline Exceedances(Detects Only)	0	0	1	96	10	11	0	83	110	4	1	0	0	0	0	0	0			

	TRH - NEPM 2013							NEPM 2013 - SG Cle			PAHs														
	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)	>C10-C16 SG Cleanup	>C16-C34 SG Cleanup	>C34-C40 SG Cleanup	Sum of polycyclic aromatic hydrocarbons	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	Fluorene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	20	20	50	50	100	100	100	50	100	100	0.0005	1	1	1	1	1	1	1	1	1	1	1	1	1
NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand																								
2-4m	6000		NL																					
4-8m	6000		NL																					
>8m	7000		NL																					
NEPM 2013 Table 1C GILs, Marine Waters																								
NHMRC Recreational Guidelines 2008 - Health																*0.1*								
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domestic)																								
Field_ID	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Lab_Report_Numbe**																					
CSM_BH02	CSM_BH02	16/04/2019	Normal	651825	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH02	CSM_BH02	14/05/2019	Normal	656080	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH02	CSM_BH02	6/06/2019	Normal	660130	<20	<20	60	60	200	100	360	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH02	CSM_BH02	30/07/2019	Normal	669059	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH02	CSM_BH02	29/08/2019	Normal	674722	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH02	CSM_BH02	26/09/2019	Normal	679636	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH04	CSM_BH04	16/04/2019	Normal	651825	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH04	CSM_BH04	13/05/2019	Normal	656080	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH04	CSM_BH04	11/06/2019	Normal	660130	<20	<20	<50	<50	200	<100	200	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH04	CSM_BH04	30/07/2019	Normal	669059	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH04	CSM_BH04	29/08/2019	Normal	674722	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH04	CSM_BH04	26/09/2019	Normal	679636	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH05	CSM_BH05	17/04/2019	Normal	651825	<20	<20	<50	<50	900	200	1100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH05	CSM_BH05	13/05/2019	Normal	656080	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH05	CSM_BH05	11/06/2019	Normal	660130	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH05	CSM_BH05	29/07/2019	Normal	669059	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH06	CSM_BH06	18/04/2019	Normal	651825	<20	<20	<50	<50	300	<100	300	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH06	CSM_BH06	14/05/2019	Normal	656080	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH06	CSM_BH06	6/06/2019	Normal	660130	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH06	CSM_BH06	30/07/2019	Normal	669059	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH06	CSM_BH06	28/08/2019	Normal	674722	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH06	CSM_BH06	26/09/2019	Normal	679636	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
QC02	CSM_BH06	14/05/2019	Field_D	656080	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
QC04	CSM_BH06	8/06/2019	Field_D	660130	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH08	CSM_BH08	18/04/2019	Normal	651825	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH08	CSM_BH08	15/05/2019	Normal	656080	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH08	CSM_BH08	6/06/2019	Normal	660130	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH08	CSM_BH08	30/07/2019	Normal	669059	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH08	CSM_BH08	29/08/2019	Normal	674722	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH08	CSM_BH08	26/09/2019	Normal	679636	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
QC02	CSM_BH08	18/04/2019	Field_D	651825	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
QC03	CSM_BH08	6/06/2019	Interlab_D	ES1917968	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<0.5*	<1	<1	<1	<1	<1
CSM_BH09S	CSM_BH09S	17/04/2019	Normal	651825	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH09S	CSM_BH09S	13/05/2019	Normal	656080	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH09S	CSM_BH09S	11/06/2019	Normal	660130	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH09S	CSM_BH09S	29/07/2019	Normal	669059	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH09S	CSM_BH09S	28/08/2019	Normal	674722	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH09S	CSM_BH09S	25/09/2019	Normal	679636	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
QC01	CSM_BH09S	17/04/2019	Interlab_D	ES1912362	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<0.5*	<1	<1	<1	<1	<1
QC01	CSM_BH09S	13/05/2019	Interlab_D	ES1914810	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<0.5*	<1	<1	<1	<1	<1
QC01	CSM_BH09S	29/07/2019	Interlab_D	ES1924197	<20	<20	<100	<100	<100	<100	<100	-	-	-	<0.0005	<1	<1	<1	<1	*<0.5*	<1	<1	<1	<1	<1
QC01	CSM_BH09S	28/08/2019	Interlab_D	EM1914568	<20	<20	<100	<100	<100	<100	<100	-	-	-	<0.0005	<1	<1	<1	<1	*<0.5*	<1	<1	<1	<1	<1
QC01	CSM_BH09S	25/09/2019	Interlab_D	ES1931406	<20	<20	<100	<100	<100	<100	<100	-	-	-	<0.0005	<1	<1	<1	<1	*<0.5*	<1	<1	<1	<1	<1
CSM_BH10S	CSM_BH10S	16/04/2019	Normal	651825	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH10S	CSM_BH10S	13/05/2019	Normal	656080	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH10S	CSM_BH10S	11/06/2019	Normal	660130	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH10S	CSM_BH10S	30/07/2019	Normal	669059	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH10S	CSM_BH10S	29/08/2019	Normal	674722	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
CSM_BH10S	CSM_BH10S	25/09/2019	Normal	679636	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
GASW_BH10	GASW_BH10	5/06/2019	Normal	659250	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
GASW_BH10	GASW_BH10	30/07/2019	Normal	669059	<20	<20	50	50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
GASW_BH10	GASW_BH10	28/08/2019	Normal	674722	<80	<80	310	310	100	<100	410	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
GASW_BH10	GASW_BH10	26/09/2019	Normal	679636	<20	<20	300	300	<100	<100	300	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
GASW_BH11	GASW_BH11	5/06/2019	Normal	659250	<20	<20	160	160	<100	<100	160	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
GASW_BH11	GASW_BH11	30/07/2019	Normal	669059	<20	<20	100	100	<100	<100	100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
GASW_BH11	GASW_BH11	28/08/2019	Normal	674722	<20	<20	270	270	<100	<100	270	140	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
GASW_BH11	GASW_BH11	25/09/2019	Normal	679636	<20	<20	640	640	200	<100	840	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
QC02	GASW_BH11	5/06/2019	Field_D	659250	<20	<20	220	220	<100	<100	220	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
GASW_BH23	GASW_BH23	25/09/2019	Normal	679636	2800	5000	400	400	300	<100	700	240	200	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
GASW_BH25A	GASW_BH25A	25/09/2019	Normal	679636	4900	10,000	260	260	200	<100	460	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
GASW_BH7	GASW_BH7	5/06/2019	Normal	659250	<20	<20	630	630	400	<100	1030	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
GASW_BH7	GASW_BH7	30/07/2019	Normal	669059	20	30	140	140	<100	<100	140	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
GASW_BH7	GASW_BH7	28/08/2019	Normal	674722	20	50	450	450	200	<100	650	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
GASW_BH7	GASW_BH7	25/09/2019	Normal	679636	30	110	840	840	400	<100	1240	240	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
QC01	GASW_BH7	5/06/2019	Interlab_D	ES1917381	<20	<20	380	380	210	<100	590	-	-	-	-	<1	<1	<1	<1	*<0.5*	<1	<1	<1	<1	<1
QA02	SRT_BH039	7/09/2018	Interlab_D	ES1826658	<20	<20	<100	<100	230	<100	230	-	-	-	-	<1	<1	<1	<1	*<0.5*	<1	<1	<1	<1	<1
QA02	SRT_BH039	26/10/2018	Interlab_D	ES1832040	<20	<20	<100	<100	220	<100	220	-	-	-	-	<1	<1	<1	<1	*<0.5*	<1	<1	<1	<1	<1
SRT-BH039	SRT_BH039	7/09/2018	Normal	616629	<20	<20	<50	<50	200	<100	200	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT-BH039	SRT_BH039	25/10/2018	Normal	624838	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH047	SRT_BH047	26/11/2018	Normal	629922	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH047	SRT_BH047	18/12/2018	Normal	634274	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH047	SRT_BH047	17/01/2019	Normal	636542	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH047	SRT_BH047	20/02/2019	Normal	641720	<20	<20	430	430	1400	300	2130	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH047	SRT_BH047	16/04/2019	Normal	651825	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH047	SRT_BH047	14/05/2019	Normal	656080	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH047	SRT_BH047	7/06/2019	Normal	660130	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH047	SRT_BH047	30/08/2019	Normal	674722	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH047	SRT_BH047	27/09/2019	Normal	679636	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT-BH047	SRT_BH047	6/09/2018	Normal	616629	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT-BH047	SRT_BH047	25/10/2018	Normal	624838	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT-BH047	SRT_BH047	31/07/2019	Normal	669059	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH048	SRT_BH048	26/11/2018	Normal	629922	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT-BH048	SRT_BH048	6/09/2018	Normal	616629	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT-BH048	SRT_BH048	25/10/2018	Normal	624838	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH052	SRT_BH052	26/11/2018	Normal	629922	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH052	SRT_BH052	18/12/2018	Normal	634274	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH052	SRT_BH052	17/01/2019	Normal	636542	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH052	SRT_BH052	20/02/2019	Normal	641720	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH052	SRT_BH052	16/04/2019	Normal	651825	<20	30	<50	<50	200	<100	200	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH052	SRT_BH052	14/05/2019	Normal	656080	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH052	SRT_BH052	7/06/2019	Normal	660130	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH052	SRT_BH052	30/08/2019	Normal	674722	<20	<20	<50	<50	100	<100	100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT_BH052	SRT_BH052	27/09/2019	Normal	679636	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT-BH052	SRT_BH052	25/10/2018	Normal	624838	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1
SRT-BH052	SRT_BH052	31/07/2019	Normal	669059	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1

Appendix B
Table B2 Groundwater sample analytical results (September 2018 to September 2019)

	TRH - NEPM 2013							NEPM 2013 - SG Cle			PAHs													
	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)	>C10-C16 SG Cleanup	>C16-C34 SG Cleanup	>C34-C40 SG Cleanup	Sum of polycyclic aromatic hydrocarbons	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	Fluorene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	20	20	50	50	100	100	100	50	100	100	0.0005	1	1	1	1	1	1	1	1	1	1	1	1
NEPM 2013 Table 1A(4) HSL D Comm/Ind GW for Vapour Intrusion, Sand																							
2-4m	6000		NL																				
4-8m	6000		NL																				
>8m	7000		NL																				
NEPM 2013 Table 1C GILs, Marine Waters																							
NHMRC Recreational Guidelines 2008 - Health																*0.1*							
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domestic)																							

Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Lab_Report_Numbe																					
SRT-BH053	SRT_BH053	6/09/2018	Normal	616629	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT-BH053	SRT_BH053	25/10/2018	Normal	624838	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_BH059	SRT_BH059	26/11/2018	Normal	629922	<20	<20	3100	3100	2900	800	6800	<50	100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_BH059	SRT_BH059	17/12/2018	Normal	634274	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_BH059	SRT_BH059	18/01/2019	Normal	636542	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_BH059	SRT_BH059	20/02/2019	Normal	641720	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_BH059	SRT_BH059	17/04/2019	Normal	651825	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_BH059	SRT_BH059	15/05/2019	Normal	656080	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_BH059	SRT_BH059	7/06/2019	Normal	660130	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_BH059	SRT_BH059	30/08/2019	Normal	674722	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_BH059	SRT_BH059	27/09/2019	Normal	679636	<20	<20	<50	<50	<100	<100	<100	120	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT-BH059	SRT_BH059	25/10/2018	Normal	624838	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT-BH059	SRT_BH059	31/07/2019	Normal	669059	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
QA01	SRT_BH063	17/12/2018	Field_D	634274	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
QA01	SRT_BH063	17/01/2019	Field_D	636542	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
QA02	SRT_BH063	27/11/2018	Interlab_D	ES1835581	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<0.5*	<1	<1	<1	<1	<1	<1	<1
QA02	SRT_BH063	21/02/2019	Interlab_D	ES1905610	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<0.5*	<1	<1	<1	<1	<1	<1	<1
SRT_BH063	SRT_BH063	26/11/2018	Normal	629922	<20	<20	730	730	1100	200	2030	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_BH063	SRT_BH063	17/12/2018	Normal	634274	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_BH063	SRT_BH063	17/01/2019	Normal	636542	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_BH063	SRT_BH063	21/02/2019	Normal	641720	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_BH063	SRT_BH063	18/04/2019	Normal	651825	<20	<20	<50	<50	200	<100	200	<50	200	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_BH063	SRT_BH063	15/05/2019	Normal	656080	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_BH063	SRT_BH063	7/06/2019	Normal	660130	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_BH063	SRT_BH063	28/08/2019	Normal	674722	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT-BH063	SRT_BH063	6/09/2018	Normal	616629	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT-BH063	SRT_BH063	25/10/2018	Normal	624838	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT-BH063	SRT_BH063	29/07/2019	Normal	669059	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT-BH064	SRT_BH064	6/09/2018	Normal	616629	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
QA01	SRT_BH082	25/10/2018	Field_D	624838	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
QA01	SRT_BH082	26/11/2018	Field_D	629922	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_BH082	SRT_BH082	26/11/2018	Normal	629922	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT-BH082	SRT_BH082	25/10/2018	Normal	624838	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
QA01	SRT_CBH001	6/09/2018	Field_D	616629	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH001	SRT_CBH001	26/11/2018	Normal	629922	<20	<20	510	510	1000	300	1810	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT-CBH001	SRT_CBH001	6/09/2018	Normal	616629	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT-CBH001	SRT_CBH001	25/10/2018	Normal	624838	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT-CBH007	SRT_CBH007	6/09/2018	Normal	616629	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
QA02	SRT_CBH015	17/12/2018	Interlab_D	ES1838345	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<0.5*	<1	<1	<1	<1	<1	<1	<1
QA02	SRT_CBH015	18/01/2019	Interlab_D	ES1901871	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<0.5*	<1	<1	<1	<1	<1	<1	<1
QC02	SRT_CBH015	31/07/2019	Field_D	669059	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
QC02	SRT_CBH015	30/08/2019	Field_D	674722	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH015	SRT_CBH015	26/11/2018	Normal	629922	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH015	SRT_CBH015	17/12/2018	Normal	634274	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH015	SRT_CBH015	18/01/2019	Normal	636542	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH015	SRT_CBH015	20/02/2019	Normal	641720	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH015	SRT_CBH015	17/04/2019	Normal	651825	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH015	SRT_CBH015	15/05/2019	Normal	656080	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH015	SRT_CBH015	7/06/2019	Normal	660130	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH015	SRT_CBH015	30/08/2019	Normal	674722	<20	<20	<50	<50	300	<100	300	<50	200	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH015	SRT_CBH015	27/09/2019	Normal	679636	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT-CBH015	SRT_CBH015	7/09/2018	Normal	616629	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT-CBH015	SRT_CBH015	25/10/2018	Normal	624838	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT-CBH015	SRT_CBH015	31/07/2019	Normal	669059	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
QA01	SRT_CBH017	20/02/2019	Field_D	641720	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
QC02	SRT_CBH017	27/09/2019	Field_D	679636	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH017	SRT_CBH017	26/11/2018	Normal	629922	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH017	SRT_CBH017	17/12/2018	Normal	634274	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH017	SRT_CBH017	18/01/2019	Normal	636542	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH017	SRT_CBH017	20/02/2019	Normal	641720	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH017	SRT_CBH017	17/04/2019	Normal	651825	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH017	SRT_CBH017	15/05/2019	Normal	656080	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH017	SRT_CBH017	7/06/2019	Normal	660130	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH017	SRT_CBH017	30/08/2019	Normal	674722	<20	<20	<50	<50	200	<100	200	<50	100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT_CBH017	SRT_CBH017	27/09/2019	Normal	679636	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT-CBH017	SRT_CBH017	7/09/2018	Normal	616629	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT-CBH017	SRT_CBH017	25/10/2018	Normal	624838	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1
SRT-CBH017	SRT_CBH017	31/07/2019	Normal	669059	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	-	<1	<1	<1	<1	*<1*	<1	<1	<1	<1	<1	<1	<1

Statistical Summary

Number of Results	163	163	163	163	163	163	163	117	117	117	3	163	163	163	163	163	163	163	163	163	163	163	163	163
Number of Detects	5	6	20	20	24	6	30	4	5	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<20	<20	<50	<50	<100	<100	<100	<50	<100	<100	<0.0005	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1
Minimum Detect	20	30	50	50	100	100	100	120	100	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	4900	10000	3100	3100	2900	800	6800	240	200	<100	<0.0005	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Maximum Detect	4900	10000	3100	3100	2900	800	6800	240	200	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	58	103	85	85	114	60	185	30	55	50	0.00025	0.5	0.5	0.5	0.5	0.48	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Median Concentration	10	10	25	25	50	50	50	25	50	50	0.00025	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Standard Deviation	440	872	272	272	280	67	608	31	25	0	0	0	0	0.039	0	0.068	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	163	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B
Table B2 Groundwater sample analytical results (September 2018 to September 2019)

							Phenols																			
	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 Calc	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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	1	0.5	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		NL																							
4-8m		NL																							
>8m		NL																							
NEPM 2013 Table 1C GILs, Marine Waters		50																			11	400			
NHMRC Recreational Guidelines 2008 - Health									*200*	*2000*				*3000*							*100*				
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domestic)					**5000**																				

Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Lab_Report_Numbe																						
CSM_BH02	CSM_BH02	16/04/2019	Normal	651825	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH02	CSM_BH02	14/05/2019	Normal	656080	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH02	CSM_BH02	6/06/2019	Normal	660130	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH02	CSM_BH02	30/07/2019	Normal	669059	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH02	CSM_BH02	29/08/2019	Normal	674722	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH02	CSM_BH02	26/09/2019	Normal	679636	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH04	CSM_BH04	16/04/2019	Normal	651825	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH04	CSM_BH04	13/05/2019	Normal	656080	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH04	CSM_BH04	11/06/2019	Normal	660130	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH04	CSM_BH04	30/07/2019	Normal	669059	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH04	CSM_BH04	29/08/2019	Normal	674722	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH04	CSM_BH04	26/09/2019	Normal	679636	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH05	CSM_BH05	17/04/2019	Normal	651825	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH05	CSM_BH05	13/05/2019	Normal	656080	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH05	CSM_BH05	11/06/2019	Normal	660130	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH05	CSM_BH05	29/07/2019	Normal	669059	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH06	CSM_BH06	18/04/2019	Normal	651825	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH06	CSM_BH06	14/05/2019	Normal	656080	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH06	CSM_BH06	6/06/2019	Normal	660130	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH06	CSM_BH06	30/07/2019	Normal	669059	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH06	CSM_BH06	28/08/2019	Normal	674722	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
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QC02	CSM_BH06	14/05/2019	Field_D	656080	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC04	CSM_BH06	8/06/2019	Field_D	660130	<1	<1	1	<1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CSM_BH08	CSM_BH08	18/04/2019	Normal	651825	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH08	CSM_BH08	15/05/2019	Normal	656080	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH08	CSM_BH08	6/06/2019	Normal	660130	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH08	CSM_BH08	30/07/2019	Normal	669059	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH08	CSM_BH08	29/08/2019	Normal	674722	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
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QC02	CSM_BH08	18/04/2019	Field_D	651825	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC03	CSM_BH08	6/06/2019	Interlab_D	ES1917968	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CSM_BH09S	CSM_BH09S	17/04/2019	Normal	651825	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH09S	CSM_BH09S	13/05/2019	Normal	656080	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH09S	CSM_BH09S	11/06/2019	Normal	660130	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH09S	CSM_BH09S	29/07/2019	Normal	669059	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH09S	CSM_BH09S	28/08/2019	Normal	674722	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	140	<30	<10	140
CSM_BH09S	CSM_BH09S	25/09/2019	Normal	679636	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
QC01	CSM_BH09S	17/04/2019	Interlab_D	ES1912362	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	13/05/2019	Interlab_D	ES1914810	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	29/07/2019	Interlab_D	ES1924197	<1	<1	<1	<1	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	28/08/2019	Interlab_D	EM1914568	<1	<1	<1	<1	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	25/09/2019	Interlab_D	ES1931406	<1	<1	<1	<1	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CSM_BH10S	CSM_BH10S	16/04/2019	Normal	651825	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH10S	CSM_BH10S	13/05/2019	Normal	656080	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH10S	CSM_BH10S	11/06/2019	Normal	660130	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH10S	CSM_BH10S	30/07/2019	Normal	669059	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH10S	CSM_BH10S	29/08/2019	Normal	674722	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
CSM_BH10S	CSM_BH10S	25/09/2019	Normal	679636	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
GASW_BH10	GASW_BH10	5/06/2019	Normal	659250	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
GASW_BH10	GASW_BH10	30/07/2019	Normal	669059	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
GASW_BH10	GASW_BH10	28/08/2019	Normal	674722	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
GASW_BH10	GASW_BH10	26/09/2019	Normal	679636	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
GASW_BH11	GASW_BH11	5/06/2019	Normal	659250	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
GASW_BH11	GASW_BH11	30/07/2019	Normal	669059	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
GASW_BH11	GASW_BH11	28/08/2019	Normal	674722	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
GASW_BH11	GASW_BH11	25/09/2019	Normal	679636	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
QC02	GASW_BH11	5/06/2019	Field_D	659250	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GASW_BH23	GASW_BH23	25/09/2019	Normal	679636	<1	2	<1	<1	2	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	17	<30	<10	<100
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GASW_BH7	GASW_BH7	5/06/2019	Normal	659250	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
GASW_BH7	GASW_BH7	30/07/2019	Normal	669059	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
GASW_BH7	GASW_BH7	28/08/2019	Normal	674722	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
GASW_BH7	GASW_BH7	25/09/2019	Normal	679636	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
QC01	GASW_BH7	5/06/2019	Interlab_D	ES1917381	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH039	7/09/2018	Interlab_D	ES1826658	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH039	26/10/2018	Interlab_D	ES1832040	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT-BH039	SRT_BH039	7/09/2018	Normal	616629	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
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SRT_BH047	SRT_BH047	17/01/2019	Normal	636542	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
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SRT_BH047	SRT_BH047	16/04/2019	Normal	651825	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH047	SRT_BH047	14/05/2019	Normal	656080	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH047	SRT_BH047	7/06/2019	Normal	660130	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH047	SRT_BH047	30/08/2019	Normal	674722	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH047	SRT_BH047	27/09/2019	Normal	679636	<1	<1	<1	<1	<1	-	<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	616629	<1	<1	<1	<1	<1	-	<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	624838	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
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SRT-BH048	SRT_BH048	6/09/2018	Normal	616629	<1	<1	<1	<1	<1	-	<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	624838	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
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SRT_BH052	SRT_BH052	17/01/2019	Normal	636542	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
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SRT_BH052	SRT_BH052	16/04/2019	Normal	651825	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH052	SRT_BH052	14/05/2019	Normal	656080	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH052	SRT_BH052	7/06/2019	Normal	660130	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH052	SRT_BH052	30/08/2019	Normal	674722	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH052	SRT_BH052	27/09/2019	Normal	679636	<1	<1	<1	<1	<1	-	<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	624838	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-BH052	SRT_BH052	31/07/2019	Normal	669059	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100

Appendix B
Table B2 Groundwater sample analytical results (September 2018 to September 2019)

							Phenols																		
	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 Calc	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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	1	0.5	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		NL																							
4-8m		NL																							
>8m		NL																							
NEPM 2013 Table 1C GILs, Marine Waters		50																			11	400			
NHMRC Recreational Guidelines 2008 - Health									*200*	*2000*				*3000*							*100*				
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domestic)					**5000**																				

Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Lab_Report_Numbe																							
SRT-BH053	SRT_BH053	6/09/2018	Normal	616629	<1	<1	<1	<1	<1	-	<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	624838	<1	<1	<1	<1	<1	-	<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	629922	<1	<1	<1	<1	<1	-	<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	634274	<1	<1	<1	<1	<1	-	<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	636542	<1	<1	<1	<1	<1	-	<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	641720	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH059	SRT_BH059	17/04/2019	Normal	651825	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH059	SRT_BH059	15/05/2019	Normal	656080	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH059	SRT_BH059	7/06/2019	Normal	660130	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH059	SRT_BH059	30/08/2019	Normal	674722	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH059	SRT_BH059	27/09/2019	Normal	679636	<1	<1	<1	<1	<1	-	<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	624838	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-BH059	SRT_BH059	31/07/2019	Normal	669059	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
QA01	SRT_BH063	17/12/2018	Field_D	634274	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH063	17/01/2019	Field_D	636542	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	27/11/2018	Interlab_D	ES1835581	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	21/02/2019	Interlab_D	ES1905610	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_BH063	SRT_BH063	26/11/2018	Normal	629922	<1	<1	<1	<1	<1	-	<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	634274	<1	<1	<1	<1	<1	-	<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	636542	<1	<1	<1	<1	<1	-	<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	641720	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH063	SRT_BH063	18/04/2019	Normal	651825	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH063	SRT_BH063	15/05/2019	Normal	656080	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH063	SRT_BH063	7/06/2019	Normal	660130	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_BH063	SRT_BH063	28/08/2019	Normal	674722	<1	<1	<1	<1	<1	-	<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	616629	<1	<1	<1	<1	<1	-	<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	624838	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-BH063	SRT_BH063	29/07/2019	Normal	669059	<1	<1	<1	<1	<1	-	<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	616629	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
QA01	SRT_BH082	25/10/2018	Field_D	624838	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH082	26/11/2018	Field_D	629922	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_BH082	SRT_BH082	26/11/2018	Normal	629922	<1	<1	<1	<1	<1	-	<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	624838	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
QA01	SRT_CBH001	6/09/2018	Field_D	616629	<1	<1	<1	<1	<1	-	<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	629922	<1	<1	<1	<1	<1	-	<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	616629	<1	<1	<1	<1	<1	-	<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	624838	<1	<1	<1	<1	<1	-	<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	616629	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
QA02	SRT_CBH015	17/12/2018	Interlab_D	ES1838345	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_CBH015	18/01/2019	Interlab_D	ES1901871	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	SRT_CBH015	31/07/2019	Field_D	669059	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	SRT_CBH015	30/08/2019	Field_D	674722	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_CBH015	SRT_CBH015	26/11/2018	Normal	629922	<1	<1	<1	<1	<1	-	<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	634274	<1	<1	<1	<1	<1	-	<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	636542	<1	<1	<1	<1	<1	-	<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	641720	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH015	SRT_CBH015	17/04/2019	Normal	651825	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH015	SRT_CBH015	15/05/2019	Normal	656080	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH015	SRT_CBH015	7/06/2019	Normal	660130	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH015	SRT_CBH015	30/08/2019	Normal	674722	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH015	SRT_CBH015	27/09/2019	Normal	679636	<1	<1	<1	<1	<1	-	<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	616629	<1	<1	<1	<1	<1	-	<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	624838	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-CBH015	SRT_CBH015	31/07/2019	Normal	669059	<1	<1	<1	<1	<1	-	<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	641720	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	SRT_CBH017	27/09/2019	Field_D	679636	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_CBH017	SRT_CBH017	26/11/2018	Normal	629922	<1	<1	<1	<1	<1	-	<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	634274	<1	<1	<1	<1	<1	-	<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	636542	<1	<1	<1	<1	<1	-	<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	641720	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH017	SRT_CBH017	17/04/2019	Normal	651825	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH017	SRT_CBH017	15/05/2019	Normal	656080	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH017	SRT_CBH017	7/06/2019	Normal	660130	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH017	SRT_CBH017	30/08/2019	Normal	674722	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT_CBH017	SRT_CBH017	27/09/2019	Normal	679636	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-CBH017	SRT_CBH017	7/09/2018	Normal	616629	<1	<1	<1	<1	<1	-	<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	624838	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
SRT-CBH017	SRT_CBH017	31/07/2019	Normal	669059	<1	<1	<1	<1	<1	-	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100

Statistical Summary

Number of Results	163	163	163	163	160	13	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138
Number of Detects	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1
Minimum Concentration	<1	<1	<1	<1	<0.5	<0.5	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	<3	<30	<10	<100
Minimum Detect	ND	1	1	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	17	ND	ND	140
Maximum Concentration	<1	2	1	<1	2	<0.5	<6	<10	<10	<3	<3	<30	<3	<3	<3	<10	<30	<100	<10	<30	<10	140	<30	<10	140
Maximum Detect	ND	2	1	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	140	ND	ND	140
Average Concentration	0.5	0.51	0.5	0.5	0.51	0.25	3	5	5	1.5	1.5	15	1.5	1.5	1.5	5	15	50	5	15	5	2.6	15	5	51
Median Concentration	0.5	0.5	0.5	0.5	0.5	0.25	3	5	5	1.5	1.5	15	1.5	1.5	1.5	5	15	50	5	15	5	1.5	15	5	50
Standard Deviation	0	0.12	0.039	0	0.18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	7.7
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	OC Pesticides																						
	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
	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
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 - Health						*3*					*90*									*100*	*3*		
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domestic)																							

Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Lab_Report_Numbe																				
CSM_BH02	CSM_BH02	16/04/2019	Normal	651825	<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
CSM_BH02	CSM_BH02	14/05/2019	Normal	656080	<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
CSM_BH02	CSM_BH02	6/06/2019	Normal	660130	<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
CSM_BH02	CSM_BH02	30/07/2019	Normal	669059	<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
CSM_BH02	CSM_BH02	29/08/2019	Normal	674722	<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
CSM_BH02	CSM_BH02	26/09/2019	Normal	679636	<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
CSM_BH04	CSM_BH04	16/04/2019	Normal	651825	<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
CSM_BH04	CSM_BH04	13/05/2019	Normal	656080	<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
CSM_BH04	CSM_BH04	11/06/2019	Normal	660130	<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
CSM_BH04	CSM_BH04	30/07/2019	Normal	669059	<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
CSM_BH04	CSM_BH04	29/08/2019	Normal	674722	<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
CSM_BH04	CSM_BH04	26/09/2019	Normal	679636	<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
CSM_BH05	CSM_BH05	17/04/2019	Normal	651825	<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
CSM_BH05	CSM_BH05	13/05/2019	Normal	656080	<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
CSM_BH05	CSM_BH05	11/06/2019	Normal	660130	<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
CSM_BH05	CSM_BH05	29/07/2019	Normal	669059	<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
CSM_BH06	CSM_BH06	18/04/2019	Normal	651825	<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
CSM_BH06	CSM_BH06	14/05/2019	Normal	656080	<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
CSM_BH06	CSM_BH06	6/06/2019	Normal	660130	<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
CSM_BH06	CSM_BH06	30/07/2019	Normal	669059	<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
CSM_BH06	CSM_BH06	28/08/2019	Normal	674722	<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
CSM_BH06	CSM_BH06	26/09/2019	Normal	679636	<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
QC02	CSM_BH06	14/05/2019	Field_D	656080	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC04	CSM_BH06	8/06/2019	Field_D	660130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CSM_BH08	CSM_BH08	18/04/2019	Normal	651825	<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
CSM_BH08	CSM_BH08	15/05/2019	Normal	656080	<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
CSM_BH08	CSM_BH08	6/06/2019	Normal	660130	<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
CSM_BH08	CSM_BH08	30/07/2019	Normal	669059	<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
CSM_BH08	CSM_BH08	29/08/2019	Normal	674722	<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
CSM_BH08	CSM_BH08	26/09/2019	Normal	679636	<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
QC02	CSM_BH08	18/04/2019	Field_D	651825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC03	CSM_BH08	6/06/2019	Interlab_D	ES1917968	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CSM_BH09S	CSM_BH09S	17/04/2019	Normal	651825	<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
CSM_BH09S	CSM_BH09S	13/05/2019	Normal	656080	<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
CSM_BH09S	CSM_BH09S	11/06/2019	Normal	660130	<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
CSM_BH09S	CSM_BH09S	29/07/2019	Normal	669059	<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
CSM_BH09S	CSM_BH09S	28/08/2019	Normal	674722	<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
CSM_BH09S	CSM_BH09S	25/09/2019	Normal	679636	<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
QC01	CSM_BH09S	17/04/2019	Interlab_D	ES1912362	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	13/05/2019	Interlab_D	ES1914810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	29/07/2019	Interlab_D	ES1924197	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	28/08/2019	Interlab_D	EM1914568	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	25/09/2019	Interlab_D	ES1931406	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CSM_BH10S	CSM_BH10S	16/04/2019	Normal	651825	<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
CSM_BH10S	CSM_BH10S	13/05/2019	Normal	656080	<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
CSM_BH10S	CSM_BH10S	11/06/2019	Normal	660130	<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
CSM_BH10S	CSM_BH10S	30/07/2019	Normal	669059	<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
CSM_BH10S	CSM_BH10S	29/08/2019	Normal	674722	<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
CSM_BH10S	CSM_BH10S	25/09/2019	Normal	679636	<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
GASW_BH10	GASW_BH10	5/06/2019	Normal	659250	<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
GASW_BH10	GASW_BH10	30/07/2019	Normal	669059	<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
GASW_BH10	GASW_BH10	28/08/2019	Normal	674722	<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
GASW_BH10	GASW_BH10	26/09/2019	Normal	679636	<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
GASW_BH11	GASW_BH11	5/06/2019	Normal	659250	<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
GASW_BH11	GASW_BH11	30/07/2019	Normal	669059	<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
GASW_BH11	GASW_BH11	28/08/2019	Normal	674722	<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
GASW_BH11	GASW_BH11	25/09/2019	Normal	679636	<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
QC02	GASW_BH11	5/06/2019	Field_D	659250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GASW_BH23	GASW_BH23	25/09/2019	Normal	679636	<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
GASW_BH25A	GASW_BH25A	25/09/2019	Normal	679636	<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
GASW_BH7	GASW_BH7	5/06/2019	Normal	659250	<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
GASW_BH7	GASW_BH7	30/07/2019	Normal	669059	<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
GASW_BH7	GASW_BH7	28/08/2019	Normal	674722	<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
GASW_BH7	GASW_BH7	25/09/2019	Normal	679636	<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
QC01	GASW_BH7	5/06/2019	Interlab_D	ES1917381	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH039	7/09/2018	Interlab_D	ES1826658	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH039	26/10/2018	Interlab_D	ES1832040	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT-BH039	SRT_BH039	7/09/2018	Normal	616629	<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
SRT-BH039	SRT_BH039	25/10/2018	Normal	624838	<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
SRT_BH047	SRT_BH047	26/11/2018	Normal	629922	<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
SRT_BH047	SRT_BH047	18/12/2018	Normal	634274	<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
SRT_BH047	SRT_BH047	17/01/2019	Normal	636542	<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
SRT_BH047	SRT_BH047	20/02/2019	Normal	641720	<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
SRT_BH047	SRT_BH047	16/04/2019	Normal	651825	<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
SRT_BH047	SRT_BH047	14/05/2019	Normal	656080	<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
SRT_BH047	SRT_BH047	7/06/2019	Normal	660130	<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
SRT_BH047	SRT_BH047	30/08/2019	Normal	674722	<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
SRT_BH047	SRT_BH047	27/09/2019	Normal	679636	<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
SRT-BH047	SRT_BH047	6/09/2018	Normal	616629	<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
SRT-BH047	SRT_BH047	25/10/2018	Normal	624838	<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
SRT-BH047	SRT_BH047	31/07/2019	Normal	669059	<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
SRT_BH048	SRT_BH048	26/11/2018	Normal	629922	<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
SRT-BH048	SRT_BH048	6/09/2018	Normal	616629	<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
SRT-BH048	SRT_BH048	25/10/2018	Normal	624838	<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
SRT_BH052	SRT_BH052	26/11/2018	Normal	629922	<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
SRT_BH052	SRT_BH052	18/12/2018	Normal	634274	<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
SRT_BH052	SRT_BH052	17/01/2019	Normal	636542	<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
SRT_BH052	SRT_BH052	20/02/2019	Normal	641720	<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
SRT_BH052	SRT_BH052	16/04/2019	Normal	651825	<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
SRT_BH052	SRT_BH052	14/05/2019	Normal	656080	<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
SRT_BH052	SRT_BH052	7/06/2019	Normal	660130	<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
SRT_BH052	SRT_BH052	30/08/2019	Normal	674722	<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
SRT_BH052	SRT_BH052	27/09/2019	Normal	679636	<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
SRT-BH052	SRT_BH052	25/10/2018	Normal	624838	<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
SRT-BH052	SRT_BH052	31/07/2019	Normal	669059	<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

	OC Pesticides																						
	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
	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
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 - Health						*3*					*90*									*100*	*3*		
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domestic)																							

Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Lab_Report_Numbe																				
SRT-BH053	SRT_BH053	6/09/2018	Normal	616629	<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
SRT-BH053	SRT_BH053	25/10/2018	Normal	624838	<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
SRT_BH059	SRT_BH059	26/11/2018	Normal	629922	<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
SRT_BH059	SRT_BH059	17/12/2018	Normal	634274	<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
SRT_BH059	SRT_BH059	18/01/2019	Normal	636542	<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
SRT_BH059	SRT_BH059	20/02/2019	Normal	641720	<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
SRT_BH059	SRT_BH059	17/04/2019	Normal	651825	<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
SRT_BH059	SRT_BH059	15/05/2019	Normal	656080	<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
SRT_BH059	SRT_BH059	7/06/2019	Normal	660130	<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
SRT_BH059	SRT_BH059	30/08/2019	Normal	674722	<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
SRT_BH059	SRT_BH059	27/09/2019	Normal	679636	<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
SRT-BH059	SRT_BH059	25/10/2018	Normal	624838	<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
SRT-BH059	SRT_BH059	31/07/2019	Normal	669059	<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
QA01	SRT_BH063	17/12/2018	Field_D	634274	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH063	17/01/2019	Field_D	636542	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	27/11/2018	Interlab_D	ES1835581	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	21/02/2019	Interlab_D	ES1905610	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_BH063	SRT_BH063	26/11/2018	Normal	629922	<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
SRT_BH063	SRT_BH063	17/12/2018	Normal	634274	<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
SRT_BH063	SRT_BH063	17/01/2019	Normal	636542	<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
SRT_BH063	SRT_BH063	21/02/2019	Normal	641720	<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
SRT_BH063	SRT_BH063	18/04/2019	Normal	651825	<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
SRT_BH063	SRT_BH063	15/05/2019	Normal	656080	<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
SRT_BH063	SRT_BH063	7/06/2019	Normal	660130	<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
SRT_BH063	SRT_BH063	28/08/2019	Normal	674722	<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
SRT-BH063	SRT_BH063	6/09/2018	Normal	616629	<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
SRT-BH063	SRT_BH063	25/10/2018	Normal	624838	<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
SRT-BH063	SRT_BH063	29/07/2019	Normal	669059	<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
SRT-BH064	SRT_BH064	6/09/2018	Normal	616629	<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
QA01	SRT_BH082	25/10/2018	Field_D	624838	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH082	26/11/2018	Field_D	629922	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_BH082	SRT_BH082	26/11/2018	Normal	629922	<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
SRT-BH082	SRT_BH082	25/10/2018	Normal	624838	<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
QA01	SRT_CBH001	6/09/2018	Field_D	616629	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_CBH001	SRT_CBH001	26/11/2018	Normal	629922	<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
SRT-CBH001	SRT_CBH001	6/09/2018	Normal	616629	<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
SRT-CBH001	SRT_CBH001	25/10/2018	Normal	624838	<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
SRT-CBH007	SRT_CBH007	6/09/2018	Normal	616629	<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
QA02	SRT_CBH015	17/12/2018	Interlab_D	ES1838345	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_CBH015	18/01/2019	Interlab_D	ES1901871	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	SRT_CBH015	31/07/2019	Field_D	669059	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	SRT_CBH015	30/08/2019	Field_D	674722	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_CBH015	SRT_CBH015	26/11/2018	Normal	629922	<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
SRT_CBH015	SRT_CBH015	17/12/2018	Normal	634274	<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
SRT_CBH015	SRT_CBH015	18/01/2019	Normal	636542	<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
SRT_CBH015	SRT_CBH015	20/02/2019	Normal	641720	<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
SRT_CBH015	SRT_CBH015	17/04/2019	Normal	651825	<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
SRT_CBH015	SRT_CBH015	15/05/2019	Normal	656080	<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
SRT_CBH015	SRT_CBH015	7/06/2019	Normal	660130	<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
SRT_CBH015	SRT_CBH015	30/08/2019	Normal	674722	<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
SRT_CBH015	SRT_CBH015	27/09/2019	Normal	679636	<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
SRT-CBH015	SRT_CBH015	7/09/2018	Normal	616629	<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
SRT-CBH015	SRT_CBH015	25/10/2018	Normal	624838	<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
SRT-CBH015	SRT_CBH015	31/07/2019	Normal	669059	<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
QA01	SRT_CBH017	20/02/2019	Field_D	641720	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	SRT_CBH017	27/09/2019	Field_D	679636	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_CBH017	SRT_CBH017	26/11/2018	Normal	629922	<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
SRT_CBH017	SRT_CBH017	17/12/2018	Normal	634274	<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
SRT_CBH017	SRT_CBH017	18/01/2019	Normal	636542	<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
SRT_CBH017	SRT_CBH017	20/02/2019	Normal	641720	<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
SRT_CBH017	SRT_CBH017	17/04/2019	Normal	651825	<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
SRT_CBH017	SRT_CBH017	15/05/2019	Normal	656080	<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
SRT_CBH017	SRT_CBH017	7/06/2019	Normal	660130	<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
SRT_CBH017	SRT_CBH017	30/08/2019	Normal	674722	<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
SRT_CBH017	SRT_CBH017	27/09/2019	Normal	679636	<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
SRT-CBH017	SRT_CBH017	7/09/2018	Normal	616629	<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
SRT-CBH017	SRT_CBH017	25/10/2018	Normal	624838	<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
SRT-CBH017	SRT_CBH017	31/07/2019	Normal	669059	<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

Statistical Summary

Number of Results	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<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
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<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
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.5	0.5	0.05	0.05	0.05	0.05	0.05	0.5	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Median Concentration	0.5	0.5	0.05	0.05	0.05	0.05	0.05	0.5	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	137	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

					OP Pesticides																									
					Methoxychlor	Toxaphene	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
					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					0.1	10	2	2	2	2	20	2	20	2	20	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 - Health					*3000*			*300*	*100*		*100*					*40*	*50*	*70*	*40*		*40*	*10*	*70*	*100*	*70*	*700*		*7*	*50*	*20*
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domestic)																														
Field_ID	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Lab_Report_Numbe**																										
CSM_BH02	CSM_BH02	16/04/2019	Normal	651825	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH02	CSM_BH02	14/05/2019	Normal	656080	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH02	CSM_BH02	6/06/2019	Normal	660130	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH02	CSM_BH02	30/07/2019	Normal	669059	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH02	CSM_BH02	29/08/2019	Normal	674722	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH02	CSM_BH02	26/09/2019	Normal	679636	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH04	CSM_BH04	16/04/2019	Normal	651825	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH04	CSM_BH04	13/05/2019	Normal	656080	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH04	CSM_BH04	11/06/2019	Normal	660130	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH04	CSM_BH04	30/07/2019	Normal	669059	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH04	CSM_BH04	29/08/2019	Normal	674722	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH04	CSM_BH04	26/09/2019	Normal	679636	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH05	CSM_BH05	17/04/2019	Normal	651825	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH05	CSM_BH05	13/05/2019	Normal	656080	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH05	CSM_BH05	11/06/2019	Normal	660130	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH05	CSM_BH05	29/07/2019	Normal	669059	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH06	CSM_BH06	18/04/2019	Normal	651825	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH06	CSM_BH06	14/05/2019	Normal	656080	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH06	CSM_BH06	6/06/2019	Normal	660130	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH06	CSM_BH06	30/07/2019	Normal	669059	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH06	CSM_BH06	28/08/2019	Normal	674722	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH06	CSM_BH06	26/09/2019	Normal	679636	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
QC02	CSM_BH06	14/05/2019	Field_D	656080	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC04	CSM_BH06	8/06/2019	Field_D	660130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CSM_BH08	CSM_BH08	18/04/2019	Normal	651825	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH08	CSM_BH08	15/05/2019	Normal	656080	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH08	CSM_BH08	6/06/2019	Normal	660130	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH08	CSM_BH08	30/07/2019	Normal	669059	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH08	CSM_BH08	29/08/2019	Normal	674722	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH08	CSM_BH08	26/09/2019	Normal	679636	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
QC02	CSM_BH08	18/04/2019	Field_D	651825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC03	CSM_BH08	6/06/2019	Interlab_D	ES1917968	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CSM_BH09S	CSM_BH09S	17/04/2019	Normal	651825	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH09S	CSM_BH09S	13/05/2019	Normal	656080	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH09S	CSM_BH09S	11/06/2019	Normal	660130	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH09S	CSM_BH09S	29/07/2019	Normal	669059	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH09S	CSM_BH09S	28/08/2019	Normal	674722	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH09S	CSM_BH09S	25/09/2019	Normal	679636	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
QC01	CSM_BH09S	17/04/2019	Interlab_D	ES1912362	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	13/05/2019	Interlab_D	ES1914810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	29/07/2019	Interlab_D	ES1924197	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	28/08/2019	Interlab_D	EM1914568	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	25/09/2019	Interlab_D	ES1931406	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CSM_BH10S	CSM_BH10S	16/04/2019	Normal	651825	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH10S	CSM_BH10S	13/05/2019	Normal	656080	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH10S	CSM_BH10S	11/06/2019	Normal	660130	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH10S	CSM_BH10S	30/07/2019	Normal	669059	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH10S	CSM_BH10S	29/08/2019	Normal	674722	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
CSM_BH10S	CSM_BH10S	25/09/2019	Normal	679636	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
GASW_BH10	GASW_BH10	5/06/2019	Normal	659250	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
GASW_BH10	GASW_BH10	30/07/2019	Normal	669059	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
GASW_BH10	GASW_BH10	28/08/2019	Normal	674722	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
GASW_BH10	GASW_BH10	26/09/2019	Normal	679636	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
GASW_BH11	GASW_BH11	5/06/2019	Normal	659250	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<5	<2
GASW_BH11	GASW_BH11	30/07/2019	Normal	669059	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
GASW_BH11	GASW_BH11	28/08/2019	Normal	674722	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
GASW_BH11	GASW_BH11	25/09/2019	Normal	679636	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
QC02	GASW_BH11	5/06/2019	Field_D	659250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GASW_BH23	GASW_BH23	25/09/2019	Normal	679636	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
GASW_BH25A	GASW_BH25A	25/09/2019	Normal	679636	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
GASW_BH7	GASW_BH7	5/06/2019	Normal	659250	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<5	<2
GASW_BH7	GASW_BH7	30/07/2019	Normal	669059	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
GASW_BH7	GASW_BH7	28/08/2019	Normal	674722	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
GASW_BH7	GASW_BH7	25/09/2019	Normal	679636	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
QC01	GASW_BH7	5/06/2019	Interlab_D	ES1917381	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH039	7/09/2018	Interlab_D	ES1826658	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH039	26/10/2018	Interlab_D	ES1832040	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT-BH039	SRT_BH039	7/09/2018	Normal	616629	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH039	SRT_BH039	25/10/2018	Normal	624838	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH047	SRT_BH047	26/11/2018	Normal	629922	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH047	SRT_BH047	18/12/2018	Normal	634274	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH047	SRT_BH047	17/01/2019	Normal	636542	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH047	SRT_BH047	20/02/2019	Normal	641720	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH047	SRT_BH047	16/04/2019	Normal	651825	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH047	SRT_BH047	14/05/2019	Normal	656080	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH047	SRT_BH047	7/06/2019	Normal	660130	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH047	SRT_BH047	30/08/2019	Normal	674722	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH047	SRT_BH047	27/09/2019	Normal	679636	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH047	SRT_BH047	6/09/2018	Normal	616629	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH047	SRT_BH047	25/10/2018	Normal	624838	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH047	SRT_BH047	31/07/2019	Normal	669059	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH048	SRT_BH048	26/11/2018	Normal	629922	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH048	SRT_BH048	6/09/2018	Normal	616629	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH048	SRT_BH048	25/10/2018	Normal	624838	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH052	SRT_BH052	26/11/2018	Normal	629922	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH052	SRT_BH052	18/12/2018	Normal	634274	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH052	SRT_BH052	17/01/2019	Normal	636542	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH052	SRT_BH052	20/02/2019	Normal	641720	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH052	SRT_BH052	16/04/2019	Normal	651825	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH052	SRT_BH052	14/05/2019	Normal	656080	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH052	SRT_BH052	7/06/2019	Normal	660130	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH052	SRT_BH052	30/08/2019	Normal	674722	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH052	SRT_BH052	27/09/2019	Normal	679636	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH052	SRT_BH052	25/10/2018	Normal	624838	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH052	SRT_BH052	31/07/2019	Normal	669059	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2

			OP Pesticides																								
	Methoxychlor	Toxaphene	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
	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	0.1	10	2	2	2	2	20	2	20	2	20	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 - Health	*3000*			*300*	*100*		*100*					*40*	*50*	*70*	*40*		*40*	*10*	*70*	*100*	*70*	*700*		*7*	*50*	*20*
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domestic)																										
Field_ID	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Lab_Report_Numbe**																							
SRT-BH053	SRT_BH053	6/09/2018	Normal	616629	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH053	SRT_BH053	25/10/2018	Normal	624838	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH059	SRT_BH059	26/11/2018	Normal	629922	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH059	SRT_BH059	17/12/2018	Normal	634274	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH059	SRT_BH059	18/01/2019	Normal	636542	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH059	SRT_BH059	20/02/2019	Normal	641720	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH059	SRT_BH059	17/04/2019	Normal	651825	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH059	SRT_BH059	15/05/2019	Normal	656080	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH059	SRT_BH059	7/06/2019	Normal	660130	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH059	SRT_BH059	30/08/2019	Normal	674722	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH059	SRT_BH059	27/09/2019	Normal	679636	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH059	SRT_BH059	25/10/2018	Normal	624838	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH059	SRT_BH059	31/07/2019	Normal	669059	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
QA01	SRT_BH063	17/12/2018	Field_D	634274	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH063	17/01/2019	Field_D	636542	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	27/11/2018	Interlab_D	ES1835581	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	21/02/2019	Interlab_D	ES1905610	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_BH063	SRT_BH063	26/11/2018	Normal	629922	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH063	SRT_BH063	17/12/2018	Normal	634274	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH063	SRT_BH063	17/01/2019	Normal	636542	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH063	SRT_BH063	21/02/2019	Normal	641720	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH063	SRT_BH063	18/04/2019	Normal	651825	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH063	SRT_BH063	15/05/2019	Normal	656080	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH063	SRT_BH063	7/06/2019	Normal	660130	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_BH063	SRT_BH063	28/08/2019	Normal	674722	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH063	SRT_BH063	6/09/2018	Normal	616629	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH063	SRT_BH063	25/10/2018	Normal	624838	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH063	SRT_BH063	29/07/2019	Normal	669059	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH064	SRT_BH064	6/09/2018	Normal	616629	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
QA01	SRT_BH082	25/10/2018	Field_D	624838	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH082	26/11/2018	Field_D	629922	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_BH082	SRT_BH082	26/11/2018	Normal	629922	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-BH082	SRT_BH082	25/10/2018	Normal	624838	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
QA01	SRT_CBH001	6/09/2018	Field_D	616629	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_CBH001	SRT_CBH001	26/11/2018	Normal	629922	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-CBH001	SRT_CBH001	6/09/2018	Normal	616629	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-CBH001	SRT_CBH001	25/10/2018	Normal	624838	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-CBH007	SRT_CBH007	6/09/2018	Normal	616629	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
QA02	SRT_CBH015	17/12/2018	Interlab_D	ES1838345	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_CBH015	18/01/2019	Interlab_D	ES1901871	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	SRT_CBH015	31/07/2019	Field_D	669059	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	SRT_CBH015	30/08/2019	Field_D	674722	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_CBH015	SRT_CBH015	26/11/2018	Normal	629922	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH015	SRT_CBH015	17/12/2018	Normal	634274	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH015	SRT_CBH015	18/01/2019	Normal	636542	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH015	SRT_CBH015	20/02/2019	Normal	641720	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH015	SRT_CBH015	17/04/2019	Normal	651825	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH015	SRT_CBH015	15/05/2019	Normal	656080	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH015	SRT_CBH015	7/06/2019	Normal	660130	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH015	SRT_CBH015	30/08/2019	Normal	674722	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH015	SRT_CBH015	27/09/2019	Normal	679636	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-CBH015	SRT_CBH015	7/09/2018	Normal	616629	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-CBH015	SRT_CBH015	25/10/2018	Normal	624838	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-CBH015	SRT_CBH015	31/07/2019	Normal	669059	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
QA01	SRT_CBH017	20/02/2019	Field_D	641720	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	SRT_CBH017	27/09/2019	Field_D	679636	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_CBH017	SRT_CBH017	26/11/2018	Normal	629922	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH017	SRT_CBH017	17/12/2018	Normal	634274	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH017	SRT_CBH017	18/01/2019	Normal	636542	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH017	SRT_CBH017	20/02/2019	Normal	641720	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH017	SRT_CBH017	17/04/2019	Normal	651825	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH017	SRT_CBH017	15/05/2019	Normal	656080	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH017	SRT_CBH017	7/06/2019	Normal	660130	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH017	SRT_CBH017	30/08/2019	Normal	674722	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT_CBH017	SRT_CBH017	27/09/2019	Normal	679636	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-CBH017	SRT_CBH017	7/09/2018	Normal	616629	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-CBH017	SRT_CBH017	25/10/2018	Normal	624838	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SRT-CBH017	SRT_CBH017	31/07/2019	Normal	669059	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Statistical Summary																											
Number of Results	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.1	<10	<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
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.1	<10	<2	<2	<2	<2	<20	<2	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<5	<2	
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.05	5	1	1	1	1	10	1	10	1	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Median Concentration	0.05	5	1	1	1	1	10	1	10	1	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.18	0	
Number of Guideline Exceedances	0	0	0	0	0	0	137	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

											PCBs								Herbicides
	Naled (Dibrom)	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	µg/L
EQL	2	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 - Health		*10*	*200*		*900*	*200*		*9*		*1000*									
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domestic)																			
Field_ID	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Lab_Report_Numbe**															
CSM_BH02	CSM_BH02	16/04/2019	Normal	651825	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
CSM_BH02	CSM_BH02	14/05/2019	Normal	656080	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH02	CSM_BH02	6/06/2019	Normal	660130	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
CSM_BH02	CSM_BH02	30/07/2019	Normal	669059	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH02	CSM_BH02	29/08/2019	Normal	674722	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH02	CSM_BH02	26/09/2019	Normal	679636	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH04	CSM_BH04	16/04/2019	Normal	651825	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
CSM_BH04	CSM_BH04	13/05/2019	Normal	656080	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH04	CSM_BH04	11/06/2019	Normal	660130	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
CSM_BH04	CSM_BH04	30/07/2019	Normal	669059	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH04	CSM_BH04	29/08/2019	Normal	674722	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH04	CSM_BH04	26/09/2019	Normal	679636	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH05	CSM_BH05	17/04/2019	Normal	651825	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
CSM_BH05	CSM_BH05	13/05/2019	Normal	656080	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH05	CSM_BH05	11/06/2019	Normal	660130	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
CSM_BH05	CSM_BH05	29/07/2019	Normal	669059	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH06	CSM_BH06	18/04/2019	Normal	651825	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
CSM_BH06	CSM_BH06	14/05/2019	Normal	656080	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH06	CSM_BH06	6/06/2019	Normal	660130	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
CSM_BH06	CSM_BH06	30/07/2019	Normal	669059	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH06	CSM_BH06	28/08/2019	Normal	674722	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH06	CSM_BH06	26/09/2019	Normal	679636	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
QC02	CSM_BH06	14/05/2019	Field_D	656080	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC04	CSM_BH06	8/06/2019	Field_D	660130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CSM_BH08	CSM_BH08	18/04/2019	Normal	651825	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
CSM_BH08	CSM_BH08	15/05/2019	Normal	656080	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH08	CSM_BH08	6/06/2019	Normal	660130	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
CSM_BH08	CSM_BH08	30/07/2019	Normal	669059	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH08	CSM_BH08	29/08/2019	Normal	674722	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH08	CSM_BH08	26/09/2019	Normal	679636	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
QC02	CSM_BH08	18/04/2019	Field_D	651825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC03	CSM_BH08	6/06/2019	Interlab_D	ES1917968	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CSM_BH09S	CSM_BH09S	17/04/2019	Normal	651825	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
CSM_BH09S	CSM_BH09S	13/05/2019	Normal	656080	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH09S	CSM_BH09S	11/06/2019	Normal	660130	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
CSM_BH09S	CSM_BH09S	29/07/2019	Normal	669059	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH09S	CSM_BH09S	28/08/2019	Normal	674722	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH09S	CSM_BH09S	25/09/2019	Normal	679636	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
QC01	CSM_BH09S	17/04/2019	Interlab_D	ES1912362	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	13/05/2019	Interlab_D	ES1914810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	29/07/2019	Interlab_D	ES1924197	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	28/08/2019	Interlab_D	EM1914568	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	CSM_BH09S	25/09/2019	Interlab_D	ES1931406	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CSM_BH10S	CSM_BH10S	16/04/2019	Normal	651825	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
CSM_BH10S	CSM_BH10S	13/05/2019	Normal	656080	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH10S	CSM_BH10S	11/06/2019	Normal	660130	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
CSM_BH10S	CSM_BH10S	30/07/2019	Normal	669059	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH10S	CSM_BH10S	29/08/2019	Normal	674722	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
CSM_BH10S	CSM_BH10S	25/09/2019	Normal	679636	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
GASW_BH10	GASW_BH10	5/06/2019	Normal	659250	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
GASW_BH10	GASW_BH10	30/07/2019	Normal	669059	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
GASW_BH10	GASW_BH10	28/08/2019	Normal	674722	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
GASW_BH10	GASW_BH10	26/09/2019	Normal	679636	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
GASW_BH11	GASW_BH11	5/06/2019	Normal	659250	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
GASW_BH11	GASW_BH11	30/07/2019	Normal	669059	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
GASW_BH11	GASW_BH11	28/08/2019	Normal	674722	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
GASW_BH11	GASW_BH11	25/09/2019	Normal	679636	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
QC02	GASW_BH11	5/06/2019	Field_D	659250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GASW_BH23	GASW_BH23	25/09/2019	Normal	679636	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
GASW_BH25A	GASW_BH25A	25/09/2019	Normal	679636	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
GASW_BH7	GASW_BH7	5/06/2019	Normal	659250	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
GASW_BH7	GASW_BH7	30/07/2019	Normal	669059	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
GASW_BH7	GASW_BH7	28/08/2019	Normal	674722	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
GASW_BH7	GASW_BH7	25/09/2019	Normal	679636	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
QC01	GASW_BH7	5/06/2019	Interlab_D	ES1917381	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH039	7/09/2018	Interlab_D	ES1826658	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH039	26/10/2018	Interlab_D	ES1832040	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT-BH039	SRT_BH039	7/09/2018	Normal	616629	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH039	SRT_BH039	25/10/2018	Normal	624838	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH047	SRT_BH047	26/11/2018	Normal	629922	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH047	SRT_BH047	18/12/2018	Normal	634274	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH047	SRT_BH047	17/01/2019	Normal	636542	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH047	SRT_BH047	20/02/2019	Normal	641720	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH047	SRT_BH047	16/04/2019	Normal	651825	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
SRT_BH047	SRT_BH047	14/05/2019	Normal	656080	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH047	SRT_BH047	7/06/2019	Normal	660130	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
SRT_BH047	SRT_BH047	30/08/2019	Normal	674722	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH047	SRT_BH047	27/09/2019	Normal	679636	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH047	SRT_BH047	6/09/2018	Normal	616629	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH047	SRT_BH047	25/10/2018	Normal	624838	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH047	SRT_BH047	31/07/2019	Normal	669059	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH048	SRT_BH048	26/11/2018	Normal	629922	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH048	SRT_BH048	6/09/2018	Normal	616629	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH048	SRT_BH048	25/10/2018	Normal	624838	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH052	SRT_BH052	26/11/2018	Normal	629922	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH052	SRT_BH052	18/12/2018	Normal	634274	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH052	SRT_BH052	17/01/2019	Normal	636542	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH052	SRT_BH052	20/02/2019	Normal	641720	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH052	SRT_BH052	16/04/2019	Normal	651825	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
SRT_BH052	SRT_BH052	14/05/2019	Normal	656080	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH052	SRT_BH052	7/06/2019	Normal	660130	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
SRT_BH052	SRT_BH052	30/08/2019	Normal	674722	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH052	SRT_BH052	27/09/2019	Normal	679636	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH052	SRT_BH052	25/10/2018	Normal	624838	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH052	SRT_BH052	31/07/2019	Normal	669059	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100

Appendix B
Table B2 Groundwater sample analytical results (September 2018 to September 2019)

											PCBs								Herbicides
	Naled (Dibrom)	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	µg/L
EQL	2	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 - Health		*10*	*200*		*900*	*200*		*9*		*1000*									
Sydney Water Trade Waste Acceptance Standards 2018-19 (non-domestic)																			
Field_ID	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Lab_Report_Numbe**															
SRT-BH053	SRT_BH053	6/09/2018	Normal	616629	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH053	SRT_BH053	25/10/2018	Normal	624838	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH059	SRT_BH059	26/11/2018	Normal	629922	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	0	<100
SRT_BH059	SRT_BH059	17/12/2018	Normal	634274	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH059	SRT_BH059	18/01/2019	Normal	636542	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH059	SRT_BH059	20/02/2019	Normal	641720	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH059	SRT_BH059	17/04/2019	Normal	651825	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
SRT_BH059	SRT_BH059	15/05/2019	Normal	656080	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH059	SRT_BH059	7/06/2019	Normal	660130	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
SRT_BH059	SRT_BH059	30/08/2019	Normal	674722	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH059	SRT_BH059	27/09/2019	Normal	679636	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH059	SRT_BH059	25/10/2018	Normal	624838	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH059	SRT_BH059	31/07/2019	Normal	669059	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
QA01	SRT_BH063	17/12/2018	Field_D	634274	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH063	17/01/2019	Field_D	636542	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	27/11/2018	Interlab_D	ES1835581	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_BH063	21/02/2019	Interlab_D	ES1905610	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_BH063	SRT_BH063	26/11/2018	Normal	629922	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH063	SRT_BH063	17/12/2018	Normal	634274	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH063	SRT_BH063	17/01/2019	Normal	636542	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH063	SRT_BH063	21/02/2019	Normal	641720	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH063	SRT_BH063	18/04/2019	Normal	651825	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
SRT_BH063	SRT_BH063	15/05/2019	Normal	656080	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_BH063	SRT_BH063	7/06/2019	Normal	660130	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
SRT_BH063	SRT_BH063	28/08/2019	Normal	674722	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH063	SRT_BH063	6/09/2018	Normal	616629	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH063	SRT_BH063	25/10/2018	Normal	624838	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH063	SRT_BH063	29/07/2019	Normal	669059	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH064	SRT_BH064	6/09/2018	Normal	616629	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
QA01	SRT_BH082	25/10/2018	Field_D	624838	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA01	SRT_BH082	26/11/2018	Field_D	629922	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_BH082	SRT_BH082	26/11/2018	Normal	629922	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-BH082	SRT_BH082	25/10/2018	Normal	624838	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
QA01	SRT_CBH001	6/09/2018	Field_D	616629	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<100
SRT_CBH001	SRT_CBH001	26/11/2018	Normal	629922	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-CBH001	SRT_CBH001	6/09/2018	Normal	616629	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-CBH001	SRT_CBH001	25/10/2018	Normal	624838	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-CBH007	SRT_CBH007	6/09/2018	Normal	616629	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
QA02	SRT_CBH015	17/12/2018	Interlab_D	ES1838345	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA02	SRT_CBH015	18/01/2019	Interlab_D	ES1901871	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	SRT_CBH015	31/07/2019	Field_D	669059	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	SRT_CBH015	30/08/2019	Field_D	674722	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_CBH015	SRT_CBH015	26/11/2018	Normal	629922	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH015	SRT_CBH015	17/12/2018	Normal	634274	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH015	SRT_CBH015	18/01/2019	Normal	636542	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH015	SRT_CBH015	20/02/2019	Normal	641720	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH015	SRT_CBH015	17/04/2019	Normal	651825	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
SRT_CBH015	SRT_CBH015	15/05/2019	Normal	656080	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH015	SRT_CBH015	7/06/2019	Normal	660130	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
SRT_CBH015	SRT_CBH015	30/08/2019	Normal	674722	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH015	SRT_CBH015	27/09/2019	Normal	679636	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-CBH015	SRT_CBH015	7/09/2018	Normal	616629	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-CBH015	SRT_CBH015	25/10/2018	Normal	624838	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-CBH015	SRT_CBH015	31/07/2019	Normal	669059	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
QA01	SRT_CBH017	20/02/2019	Field_D	641720	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC02	SRT_CBH017	27/09/2019	Field_D	679636	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRT_CBH017	SRT_CBH017	26/11/2018	Normal	629922	<2	<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	634274	<2	<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	636542	<2	<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	641720	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH017	SRT_CBH017	17/04/2019	Normal	651825	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
SRT_CBH017	SRT_CBH017	15/05/2019	Normal	656080	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH017	SRT_CBH017	7/06/2019	Normal	660130	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<5	<5	<5	<5	<1	<100
SRT_CBH017	SRT_CBH017	30/08/2019	Normal	674722	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT_CBH017	SRT_CBH017	27/09/2019	Normal	679636	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-CBH017	SRT_CBH017	7/09/2018	Normal	616629	<2	<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	624838	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
SRT-CBH017	SRT_CBH017	31/07/2019	Normal	669059	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<100
Statistical Summary																			
Number of Results					137	137	137	137	137	137	137	137	137	137	137	137	137	137	138
Number of Detects					0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Minimum Concentration					<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<1	<1	<1	0	<100
Minimum Detect					ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration					<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<5	<1	<5	<1	<100
Maximum Detect					ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration					1	1	1	1	10	1	1	1	1	1	0.92	0.5	0.92	0.5	50
Median Concentration					1	1	1	1	10	1	1	1	1	1	0.5	0.5	0.5	0.5	50
Standard Deviation					0	0	0	0	0	0	0	0	0	0	0.82	0	0.82	0.043	0
Number of Guideline Exceedances					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B

Table B3 Summary of groundwater gauging results - April to September 2019

Well ID	Sampling Event	Date Measured	SWL (mbTOC)	BOC (mbTOC)	Elevation of well TOC (mAHD)	SWL (mAHD)	Lithology (mAHD)	Well screen (mAHD)	Lithology (mbgl)	Well screen (mbgl)
SRT_BH047	Event 7 - Apr 2019	16/04/2019	4.739	6.94	21.31	16.571	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 8 - May 2019	14/05/2019	5.198	6.96	21.31	16.112				
SRT_BH047	Event 9 - June 2019	7/06/2019	4.594	6.95	21.31	16.716				
SRT_BH047	Event 10 - July 2019	31/07/2019	5.01	6.95	21.31	16.3				
SRT_BH047	Event 11 - Aug 2019	30/08/2019	4.65	6.965	21.31	16.66				
SRT_BH047	Event 12 - Sept 2019	27/09/2019	4.15	6.94	21.31	17.16				
SRT_BH052	Event 7 - Apr 2019	16/04/2019	5.938	7.89	21.4	15.462	19.55-21.40 fill 16.40-19.55 residual soil 6.08-16.40 sandstone	14.2-16.9		
SRT_BH052	Event 8 - May 2019	14/05/2019	6.246	7.9	21.4	15.154				
SRT_BH052	Event 9 - June 2019	7/06/2019	6.305	7.9	21.4	15.095				
SRT_BH052	Event 10 - July 2019	31/07/2019	6.283	7.92	21.4	15.117				
SRT_BH052	Event 11 - Aug 2019	30/08/2019	6.314	7.8	21.4	15.086				
SRT_BH052	Event 12 - Sept 2019	27/09/2019	6.105	7.93	21.4	15.295				
SRT_BH059	Event 7 - Apr 2019	17/04/2019	3.568	6	22.84	19.272	20.04-22.84 fill 16.29-20.04 shale 7.96-16.29 sandstone	16.29-21.55		
SRT_BH059	Event 8 - May 2019	15/05/2019	4.204	6	22.84	18.636				
SRT_BH059	Event 9 - June 2019	7/06/2019	3	6	22.84	19.84				
SRT_BH059	Event 10 - July 2019	31/07/2019	3.631	6	22.84	19.209				
SRT_BH059	Event 11 - Aug 2019	30/08/2019	3.003	6	22.84	19.837				
SRT_BH059	Event 12 - Sept 2019	27/09/2019	3.09	6	22.84	19.75				
SRT_BH063	Event 7 - Apr 2019	18/04/2019	10.772	14.5	25.41	14.638	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 8 - May 2019	15/05/2019	10.84	14.5	25.41	14.57				
SRT_BH063	Event 9 - June 2019	7/06/2019	10.782	14.505	25.41	14.628				
SRT_BH063	Event 10 - July 2019	29/07/2019	10.785	14.5	25.41	14.625				
SRT_BH063	Event 11 - Aug 2019	28/08/2019	10.81	14.8	25.41	14.6				
SRT_CBH015	Event 7 - Apr 2019	17/04/2019	3.809	5.92	22.81	19.001	20-22.91 fill 19.4-20 residual soil 16.9-17.4 shale	16.9-18.9		
SRT_CBH015	Event 8 - May 2019	15/05/2019	3.85	5.91	22.81	18.96				
SRT_CBH015	Event 9 - June 2019	7/06/2019	3.958	5.91	22.81	18.852				
SRT_CBH015	Event 10 - July 2019	31/07/2019	4.013	5.915	22.81	18.797				
SRT_CBH015	Event 11 - Aug 2019	30/08/2019	4.04	5.91	22.81	18.77				
SRT_CBH015	Event 12 - Sept 2019	27/09/2019	3.85	5.95	22.81	18.96				
SRT_CBH017	Event 7 - Apr 2019	17/04/2019	2.928	4.94	22.82	19.892	20-22.92 fill 17.8-20 shale	17.8-19.8		
SRT_CBH017	Event 8 - May 2019	15/05/2019	2.905	4.96	22.82	19.915				
SRT_CBH017	Event 9 - June 2019	7/06/2019	3.193	4.94	22.82	19.627				
SRT_CBH017	Event 10 - July 2019	31/07/2019	3.214	4.94	22.82	19.606				
SRT_CBH017	Event 11 - Aug 2019	30/08/2019	3.373	4.94	22.82	19.447				
SRT_CBH017	Event 12 - Sept 2019	27/09/2019	3.175	4.97	22.82	19.645				
CSM_BH02	Event 7 - Apr 2019	16/04/2019	13.573	28.18	21.424	7.851	14.28-14.88 concrete / fill 13.98-14.28 residual soil (20.12)-13.98 sandstone	(20.12)-0.88		
CSM_BH02	Event 8 - May 2019	14/05/2019	16.07	28.14	21.424	5.354				
CSM_BH02	Event 9 - June 2019	6/06/2019	19.422	34.38	21.424	2.002				
CSM_BH02	Event 10 - July 2019	30/07/2019	22.662	34.23	21.424	-1.238				
CSM_BH02	Event 11 - Aug 2019	29/08/2019	21.49	34.05	21.424	-0.066				
CSM_BH02	Event 12 - Sept 2019	26/09/2019	20.685	33.67	21.424	0.739				
CSM_BH04	Event 7 - Apr 2019	16/04/2019	18.396	35.05	15.814	-2.582	13.91-15.91 fill 5.91-13.91 residual (sand, claey sand, sandy clay) (20.91)-5.91 sandstone	(20.91)-(5.91)		
CSM_BH04	Event 8 - May 2019	13/05/2019	18.502	35.2	15.814	-2.688				
CSM_BH04	Event 9 - June 2019	11/06/2019	18.452	34.99	15.814	-2.638				
CSM_BH04	Event 10 - July 2019	30/07/2019	22.258	35.26	15.814	-6.444				
CSM_BH04	Event 11 - Aug 2019	29/08/2019	22.17	34.28	15.814	-6.356				
CSM_BH04	Event 11 - Sept 2019	26/09/2019	22.165	34.12	15.814	-6.351				
CSM_BH05	Event 7 - Apr 2019	17/04/2019	19.346	33.48	20.837	1.491	20.39-20.89 fill 12.89-20.39 residual (weathered shale) (15.89)-12.89 sandstone	(15.89)-0.89		
CSM_BH05	Event 8 - May 2019	13/05/2019	19.359	33.43	20.837	1.478				
CSM_BH05	Event 9 - June 2019	11/06/2019	19.375	33.96	20.837	1.462				
CSM_BH05	Event 10 - July 2019	29/07/2019	22.63	33.97	20.837	-1.793				
CSM_BH06	Event 7 - Apr 2019	18/04/2019	20.377	35.44	21.93	1.553	19.52-20.02 fill 14.02-19.52 residual (clayey sand, sandy clay, clay) 10.02-14.02 residual / weathered shale / weathered claystone (13.02)-10.02 sandstone	(13.02)-2.02		
CSM_BH06	Event 8 - May 2019	14/05/2019	20.395	35.93	21.93	1.535				
CSM_BH06	Event 9 - June 2019	6/06/2019	20.402	35.42	21.93	1.528				
CSM_BH06	Event 10 - July 2019	30/07/2019	23.705	35.43	21.93	-1.775				
CSM_BH06	Event 11 - Aug 2019	28/08/2019	22.03	35.46	21.93	-0.1				
CSM_BH06	Event 12 - Sept 2019	26/09/2019	21.146	35.38	21.93	0.784				
CSM_BH08	Event 7 - Apr 2019	18/04/2019	13.251	35.11	14.694	1.443	14.28-14.88 concrete / fill 13.98-14.28 residual (sandy clay) (21.88)-13.98 sandstone	(21.88)-(6.88)		
CSM_BH08	Event 8 - May 2019	15/05/2019	13.295	35.55	14.694	1.399				
CSM_BH08	Event 9 - June 2019	6/06/2019	13.302	35.14	14.694	1.392				
CSM_BH08	Event 10 - July 2019	30/07/2019	16.205	35.05	14.694	-1.511				
CSM_BH08	Event 11 - Aug 2019	29/08/2019	14.83	35.05	14.694	-0.136				
CSM_BH08	Event 12 - Sept 2019	26/09/2019	14.045	35.44	14.694	0.649				
CSM_BH09S	Event 7 - Apr 2019	17/04/2019	4.073	6.59	20.807	16.734	20.59-20.89 fill 14.39-20.59 residual (weathered shale)	14.39-17.89		
CSM_BH09S	Event 8 - May 2019	13/05/2019	4.25	6.59	20.807	16.557				
CSM_BH09S	Event 9 - June 2019	11/06/2019	4.165	6.59	20.807	16.642				
CSM_BH09S	Event 10 - July 2019	29/07/2019	4.173	9.59	20.807	16.634				
CSM_BH09S	Event 11 - Aug 2019	28/08/2019	4.425	6.59	20.807	16.382				
CSM-BH09S	Event 12 - Sept 2019	25/09/2019	4.03	6.62	20.807	16.777				
CSM_BH10S	Event 7 - Apr 2019	16/04/2019	4.01	9.89	15.583	11.573	13.68-15.68 fill 9.68-13.68 redisual soil (sand) 5.68-9.68 residual soil (clayey sand and sandy clay)	5.98-9.68		
CSM_BH10S	Event 8 - May 2019	13/05/2019	4.349	9.87	15.583	11.234				
CSM_BH10S	Event 9 - June 2019	11/06/2019	4.13	9.89	15.583	11.453				
CSM_BH10S	Event 10 - July 2019	30/07/2019	4.421	9.835	15.583	11.162				
CSM_BH10S	Event 11 - Aug 2019	29/08/2019	4.63	9.815	15.583	10.953				
CSM_BH10S	Event 12 - Sept 2019	25/09/2019	4.265	9.78	15.583	11.318				
GASW_BH7	Event 9 - June 2019	5/06/2019	4.24	6.17	21.17	16.93			0-2.7 fill 2.7-5 silty clay 5-7 shale	5-7
GASW_BH7	Event 10 - July 2019	29/07/2019	4.165	6.18	21.17	17.005				
GASW_BH7	Event 11 - Aug 2019	28/08/2019	4.115	6.21	21.17	17.055				
GASW_BH7	Event 12 - Sept 2019	25/09/2019	3.664	6.19	21.17	17.506				
GASW_BH10	Event 9 - June 2019	5/06/2019	12.375	25	20.493	8.118			0-3.5 fill 3.5-6 silty clay 6-8.5 shale 8.5-25 sandstone	22-25
GASW_BH10	Event 10 - July 2019	29/07/2019	19.966	25.37	20.493	0.527				
GASW_BH10	Event 11 - Aug 2019	28/08/2019	20.625	25	20.493	-0.132				
GASW_BH10	Event 12 - Sept 2019	26/09/2019	19.705	25.11	20.493	0.788				
GASW_BH11	Event 9 - June 2019	5/06/2019	4.88	9.01	20.548	15.668			0-3.7 fill 3.7-6 silty clay 6-7 shale 7-9 sandstone	6-9
GASW_BH11	Event 10 - July 2019	29/07/2019	5.265	9.01	20.548	15.283				
GASW_BH11	Event 11 - Aug 2019	28/08/2019	5.635	9.01	20.548	14.913				
GASW_BH11	Event 12 - Sept 2019	25/09/2019	5.023	9.03	20.548	15.525				
GASW_BH23	Event 12 - Sept 2019	25/09/2019	2.44	3.92	19.605	17.165	17.01-19.61 fill	17.01-18.61		
GASW_BH25a	Event 12 - Sept 2019	25/09/2019	2.56	4.4	19.631	17.071	16.73-19.63 fill / concrete	16.73-18.63		

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

Appendix B
Table B4 Summary of Groundwater Field Paramaters - April 2019 to September 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)	Comments
CSM_BH02	Event 7 - Apr 2019	16/04/2019	13.573	28.18	10.69	376.1	6.59	37.2	21.1	Red, turbid and sediments, no odour/sheen
CSM_BH02	Event 8 - May 2019	14/05/2019	16.07	28.14	0.24	675	6.91	-61.1	21	Light brown, cloudy/turbid, no odour/sheen
CSM_BH02	Event 9 - June 2019	6/06/2019	19.422	34.38	1.22	849	6.98	-51.3	20.2	Light brown, cloudy, no odour/sheen
CSM_BH02	Event 10 - July 2019	30/07/2019	22.662	34.23	4.85	1013	7.26	106.3	19.4	Light brown, turbid with sediment, no odour/sheen
CSM_BH02	Event 11 - Aug 2019	29/08/2019	21.49	34.05	0.08	1023	6.75	40.7	19.3	Brown, silty, no odour/sheen
CSM_BH02	Event 12 - Sept 2019	26/09/2019	20.685	33.67	0.26	935	6.77	-36.7	19.9	Cloudy, light grey, no odour/sheen
CSM_BH04	Event 7 - Apr 2019	16/04/2019	18.396	35.05	9.77	436	6.48	-14.5	21.5	Pale brown, turbid, mild organics odour
CSM_BH04	Event 8 - May 2019	13/05/2019	18.502	35.2	1.82	433.2	5.92	49.3	21.3	Light brown, turbid, no odour/sheen
CSM_BH04	Event 9 - June 2019	11/06/2019	18.452	34.99	0.33	434.3	5.97	17.2	20.9	Grey, cloudy, no odour/sheen
CSM_BH04	Event 10 - July 2019	30/07/2019	22.258	35.26	3.61	463.8	6.07	53.5	20.5	Light brown, cloudy with silt, no odour/sheen
CSM_BH04	Event 11 - Aug 2019	29/08/2019	22.17	34.28	1.58	421.4	5.34	75.9	19.7	Orange, turbid, no odour/sheen
CSM_BH04	Event 12 - Sept 2019	26/09/2019	22.165	34.12	0	724	7.57	-239	21.2	Clear to brown turbid, slight organic odour
CSM_BH05	Event 7 - Apr 2019	17/04/2019	19.346	33.48	0.37	880	6.69	-21.7	21.2	Brown, turbid, no odour/sheen
CSM_BH05	Event 8 - May 2019	13/05/2019	19.359	33.43	0.31	980	6.57	-3.9	19.9	Light brown/grey, turbid, no odour/sheen
CSM_BH05	Event 9 - June 2019	11/06/2019	19.375	33.96	0.58	1093	6.5	16.6	19.6	Clear, red , no odour/sheen
CSM_BH05	Event 10 - July 2019	29/07/2019	22.63	33.97	0.38	877	6.33	27.8	19.2	Cloudy, no odour/sheen
CSM_BH05	Event 11 - Aug 2019	28/08/2019	-	20.72	-	-	-	-	-	WELL DESTROYED BY TBM
CSM_BH06	Event 7 - Apr 2019	18/04/2019	20.377	35.44	3.88	949	6.49	91.3	23.7	Pale brown, turbid, no odour/sheen
CSM_BH06	Event 8 - May 2019	14/05/2019	20.395	35.93	0.53	986	6.33	11.4	21.1	Cloudy, no odour/sheen
CSM_BH06	Event 9 - June 2019	6/06/2019	20.402	35.42	0.27	995	6.49	-74.7	21.8	Light brown, cloudy, no odour/sheen
CSM_BH06	Event 10 - July 2019	30/07/2019	23.705	35.43	2.49	996	6.37	40.6	21.4	Light brown, cloudy, no odour/sheen
CSM_BH06	Event 11 - Aug 2019	28/08/2019	22.03	35.46	5.9	1036	6.81	66.9	21.9	Clear, no odour/sheen
CSM_BH06	Event 12 - Sept 2019	26/09/2019	21.146	35.38	0.34	680	5.73	119.8	22.6	Cloudy, light brown, no odour/sheen
CSM_BH08	Event 7 - Apr 2019	18/04/2019	13.251	35.11	2.69	528	6.33	8.4	21.3	Cloudy, slightly turbid, no odour/sheen
CSM_BH08	Event 8 - May 2019	15/05/2019	13.295	35.55	0.74	540	6.38	-18.7	20.7	Clear, no odour/sheen
CSM_BH08	Event 9 - June 2019	6/06/2019	13.302	35.14	0.22	534	6.61	-30.9	20.5	Slightly cloudy, no odour/sheen
CSM_BH08	Event 10 - July 2019	30/07/2019	16.205	35.05	0.5	647	6.64	-72.2	20.6	Clear, no odour/sheen
CSM_BH08	Event 11 - Aug 2019	29/08/2019	14.83	35.05	0.37	663	6.45	-10.8	20.2	Clear, no sediment, no odour/sheen
CSM_BH08	Event 12 - Sept 2019	26/09/2019	14.045	35.44	0.15	551	6.28	-41.9	20.4	Clear, no odour/sheen
CSM_BH09S	Event 7 - Apr 2019	17/04/2019	4.073	6.59	0.17	947	5.72	112.7	20.6	Clear to pale brown, slightly cloudy, no odour/sheen
CSM_BH09S	Event 8 - May 2019	13/05/2019	4.25	6.59	0.71	670	5.89	34.6	19.9	Clear, no odour/sheen
CSM_BH09S	Event 9 - June 2019	11/06/2019	4.165	6.59	0.5	712	5.82	98.7	20.2	Clear, no odour/sheen
CSM_BH09S	Event 10 - July 2019	29/07/2019	4.173	9.59	0.61	672	5.81	50.1	19.2	Clear, no odour/sheen
CSM_BH09S	Event 11 - Aug 2019	28/08/2019	4.425	6.59	0.77	568	5.73	44.7	18.9	Clear/light brown, no odour/sheen
CSM_BH09S	Event 12 - Sept 2019	25/09/2019	4.03	6.62	1.12	651	5.56	124.5	19.3	Clear, no odour/sheen
CSM_BH10S	Event 7 - Apr 2019	16/04/2019	4.01	9.89	0.26	311.6	5.15	227.6	22	Pale brown, slightly turbid, no odour/sheen
CSM_BH10S	Event 8 - May 2019	13/05/2019	4.349	9.87	0.12	269.7	4.99	198.9	21.5	Clear, no odour/sheen
CSM_BH10S	Event 9 - June 2019	11/06/2019	4.13	9.89	0.21	258.1	5.49	261	20.6	Clear, no odour/sheen
CSM_BH10S	Event 10 - July 2019	30/07/2019	4.421	9.835	0.47	265.6	5.56	222.8	20.6	Clear, no odour/sheen
CSM_BH10S	Event 11 - Aug 2019	29/08/2019	4.63	9.815	0.95	239.3	5.01	77.3	19.5	Brown cloudy, no odour/sheen
CSM_BH10S	Event 12 - Sept 2019	25/09/2019	4.265	9.78	0.13	235.8	5.13	235.9	20.7	Clear, no odour/sheen
GASW_BH10	Event 9 - June 2019	5/06/2019	12.375	25	0.34	914	7.39	-191.7	18.2	Clear, no odour/sheen
GASW_BH10	Event 10 - July 2019	29/07/2019	19.966	25.37	0.27	1080	6.67	-196.2	20.2	Dark grey, turbid, slight organic odour and slight sheen
GASW_BH10	Event 11 - Aug 2019	28/08/2019	20.625	25	4.04	1239	6.74	-25.7	20.8	Clear, slightly turbid, no odour/sheen
GASW_BH10	Event 12 - Sept 2019	26/09/2019	19.705	25.11	0.18	1238	6.45	-106.1	20.2	Cloudy, light grey, slight organic odour
GASW_BH11	Event 9 - June 2019	5/06/2019	4.88	9.01	0.9	332.7	5.82	84.7	20.3	Red brown, turbid and sediments, slight hydrocarbon odour, no sheen
GASW_BH11	Event 10 - July 2019	29/07/2019	5.265	9.01	0.63	365	5.87	52.5	21.4	Clear, slight organic odour
GASW_BH11	Event 11 - Aug 2019	28/08/2019	5.635	9.01	1.06	316.3	5.6	35.8	20.8	Brown cloudy, no odour/sheen
GASW_BH11	Event 12 - Sept 2019	25/09/2019	5.023	9.03	0.07	287.9	5.38	115.1	21.2	Cloudy, slightly red, no odour/sheen
GASW_BH23	Event 12 - Sept 2019	25/09/2019	2.44	3.92	0	918	6.59	-92.9	19.2	Slightly cloudy, light grey, tar odour, no sheen
GASW_BH25a	Event 12 - Sept 2019	25/09/2019	2.56	4.4	0	626	8.57	-306.9	18.1	Slightly cloudy, light grey, tar odour, no sheen

Appendix B
Table B4 Summary of Groundwater Field Paramaters - April 2019 to September 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)	Comments
GASW_BH7	Event 9 - June 2019	5/06/2019	4.24	6.17	1.4	458.3	5.77	104.5	20.5	Clear, red brown, no odour/sheen
GASW_BH7	Event 10 - July 2019	29/07/2019	4.165	6.18	0.7	441.5	4.32	271.2	20.7	Red brown to clear, turbid, very slight hydrocarbon odour, no sheen
GASW_BH7	Event 11 - Aug 2019	28/08/2019	4.115	6.21	1	438.4	4.24	91.5	20.4	Clear, no odour/sheen
GASW_BH7	Event 12 - Sept 2019	25/09/2019	3.664	6.19	0.36	454.5	3.95	292.9	20.2	Clear, no odour/sheen
SRT_BH047	Event 7 - Apr 2019	16/04/2019	4.739	6.94	1.95	398.1	7.79	94.2	20.7	Clear, no odour/sheen
SRT_BH047	Event 8 - May 2019	14/05/2019	5.198	6.96	0.99	441.5	7.68	91.8	20.6	Clear, no odour/sheen
SRT_BH047	Event 9 - June 2019	7/06/2019	4.594	6.95	1.56	409.8	7.83	93.8	19.9	Brown, cloudy, no odour/sheen
SRT_BH047	Event 10 - July 2019	31/07/2019	5.01	6.95	2.18	388.5	7.67	98.8	19.5	Clear, no odour/sheen
SRT_BH047	Event 11 - Aug 2019	30/08/2019	4.65	6.965	1.04	416.1	7.95	42.2	18.8	Slgihtly turbid, clear and colourless, no odour/sheen
SRT_BH047	Event 12 - Sept 2019	27/09/2019	4.15	6.94	1.54	415.1	7.45	105.2	19.6	Clear, no odour/sheen
SRT_BH052	Event 7 - Apr 2019	16/04/2019	5.938	7.89	1.73	317.2	6.51	9.3	20.8	Clear, no odour/sheen
SRT_BH052	Event 8 - May 2019	14/05/2019	6.246	7.9	2.63	363.4	6.98	84.9	20.7	Clear, no odour/sheen
SRT_BH052	Event 9 - June 2019	7/06/2019	6.305	7.9	3.43	382.5	7.59	90.8	19.4	Clear, no odour/sheen
SRT_BH052	Event 10 - July 2019	31/07/2019	6.283	7.92	3.2	369.2	7.29	98.5	19.4	Clear, no odour/sheen
SRT_BH052	Event 11 - Aug 2019	30/08/2019	6.314	7.8	3.86	406.7	9.01	50.4	18.7	Brown, slightly turbid, no odour/sheen
SRT_BH052	Event 12 - Sept 2019	27/09/2019	6.105	7.93	4.53	416.1	7.39	114.8	19.9	Clear, no odour/sheen
SRT_BH059	Event 7 - Apr 2019	17/04/2019	3.568	6	3.3	403.7	6.87	161.2	21.7	Clear, no odour/sheen
SRT_BH059	Event 8 - May 2019	15/05/2019	4.204	6	3.72	423.5	6.8	149	21.4	Clear, no odour/sheen
SRT_BH059	Event 9 - June 2019	7/06/2019	3	6	5.09	417.1	6.87	154	20.6	Clear, no odour/sheen
SRT_BH059	Event 10 - July 2019	31/07/2019	3.631	6	5.56	396.7	7.02	158.7	19.8	Clear, no odour/sheen
SRT_BH059	Event 11 - Aug 2019	30/08/2019	3.003	6	6.9	349	6.91	447	18.5	Clear, colourless, no odour/sheen
SRT_BH059	Event 12 - Sept 2019	27/09/2019	3.09	6	4.77	362.7	6.78	136.8	19.4	Clear, no odour/sheen
SRT_BH063	Event 7 - Apr 2019	18/04/2019	10.772	14.5	6.12	771	6.66	136.7	21.4	Clear, no odour/sheen
SRT_BH063	Event 8 - May 2019	15/05/2019	10.84	14.5	3.44	793	6.59	74.9	21.2	Clear, no odour/sheen
SRT_BH063	Event 9 - June 2019	7/06/2019	10.782	14.505	4.37	726	6.6	137.5	20.8	Clear, no odour/sheen
SRT_BH063	Event 10 - July 2019	29/07/2019	10.785	14.5	6.11	758	6.65	53.6	21.2	Clear, no odour/sheen
SRT_BH063	Event 11 - Aug 2019	28/08/2019	10.81	14.8	6.85	785	6.74	64.4	21.3	Brown cloudy, no odour/sheen
SRT_CBH015	Event 7 - Apr 2019	17/04/2019	3.809	5.92	0.29	230.8	5.31	220.7	21.9	Clear to slightly cloudy, no odour/sheen
SRT_CBH015	Event 8 - May 2019	15/05/2019	3.85	5.91	0.3	222.3	5.15	189.3	21.6	Clear, no odour/sheen
SRT_CBH015	Event 9 - June 2019	7/06/2019	3.958	5.91	0.59	212.7	5.32	269.9	20.9	Clear, no odour/sheen
SRT_CBH015	Event 10 - July 2019	31/07/2019	4.013	5.915	1.74	207.8	5.3	255.6	20.3	Clear, no odour/sheen
SRT_CBH015	Event 11 - Aug 2019	30/08/2019	4.04	5.91	1.03	208.1	5.19	65.1	19.6	Clear and colourless, no odour/sheen
SRT_CBH015	Event 12 - Sept 2019	27/09/2019	3.85	5.95	0.93	201.1	5.1	219.8	20.6	Clear, no odour/sheen
SRT_CBH017	Event 7 - Apr 2019	17/04/2019	2.928	4.94	3.41	146.2	5.88	164.8	22.4	Clear, no odour/sheen
SRT_CBH017	Event 8 - May 2019	15/05/2019	2.905	4.96	2.76	153.2	5.75	152.3	21.9	Clear, no odour/sheen
SRT_CBH017	Event 9 - June 2019	7/06/2019	3.193	4.94	1.68	159.8	6.09	189.4	21	Clear, no odour/sheen
SRT_CBH017	Event 10 - July 2019	31/07/2019	3.214	4.94	1.41	192.9	6.22	178.5	20	Clear, no odour/sheen
SRT_CBH017	Event 11 - Aug 2019	30/08/2019	3.373	4.94	2.34	233.9	6.47	50.1	19.6	Clear and colourless, no odour/sheen
SRT_CBH017	Event 12 - Sept 2019	27/09/2019	3.175	4.97	1.5	209.4	5.96	162	20.3	Clear, no odour/sheen

Appendix B

Table B5 Groundwate Aggressivity Comparison Table - Steel Piles

Monitoring well ID	sampling dates	pH (lab)	pH (field)	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
CSM_BH02	16/04/2019	-	6.59	51	non-aggressive	non-aggressive	deep
CSM_BH02	14/05/2019	8.5	6.91	68	non-aggressive	non-aggressive	deep
CSM_BH02	6/06/2019	7.8	6.98	150	non-aggressive	non-aggressive	deep
CSM_BH02	30/07/2019	8	7.26	500	non-aggressive	non-aggressive	deep
CSM_BH02	29/08/2019	7.9	6.75	190	non-aggressive	non-aggressive	deep
CSM_BH02	26/09/2019	7.8	6.77	160	non-aggressive	non-aggressive	deep
CSM_BH04	16/04/2019	-	6.48	65	non-aggressive	non-aggressive	offsite deep
CSM_BH04	13/05/2019	7.3	5.92	56	non-aggressive	non-aggressive	offsite deep
CSM_BH04	11/06/2019	6.7	5.97	63	non-aggressive	non-aggressive	offsite deep
CSM_BH04	30/07/2019	7	6.07	110	non-aggressive	non-aggressive	offsite deep
CSM_BH04	29/08/2019	6.5	5.34	55	non-aggressive	non-aggressive	offsite deep
CSM_BH04	26/09/2019	8.5	7.57	74	non-aggressive	non-aggressive	offsite deep
CSM_BH05	17/04/2019	-	6.69	130	non-aggressive	non-aggressive	deep
CSM_BH05	13/05/2019	8.2	6.57	190	non-aggressive	non-aggressive	deep
CSM_BH05	11/06/2019	7.4	6.5	220	non-aggressive	non-aggressive	deep
CSM_BH05	29/07/2019	7.2	6.33	160	non-aggressive	non-aggressive	deep
CSM_BH06	18/04/2019	-	6.49	180	non-aggressive	non-aggressive	offsite deep
CSM_BH06	14/05/2019	8	6.33	220	non-aggressive	non-aggressive	offsite deep
CSM_BH06	6/06/2019	7.2	6.49	210	non-aggressive	non-aggressive	offsite deep
CSM_BH06	30/07/2019	7.3	6.37	180	non-aggressive	non-aggressive	offsite deep
CSM_BH06	28/08/2019	8	6.81	200	non-aggressive	non-aggressive	offsite deep
CSM_BH06	26/09/2019	6.9	5.73	140	non-aggressive	non-aggressive	offsite deep
CSM_BH08	18/04/2019	-	6.33	93	non-aggressive	non-aggressive	offsite deep
CSM_BH08	15/05/2019	7.9	6.38	92	non-aggressive	non-aggressive	offsite deep
CSM_BH08	6/06/2019	7.2	6.61	90	non-aggressive	non-aggressive	offsite deep
CSM_BH08	30/07/2019	7.3	6.64	110	non-aggressive	non-aggressive	offsite deep
CSM_BH08	29/08/2019	7.4	6.45	110	non-aggressive	non-aggressive	offsite deep
CSM_BH08	26/09/2019	7.2	6.28	94	non-aggressive	non-aggressive	offsite deep
CSM_BH09S	17/04/2019	-	5.72	79	non-aggressive	non-aggressive	shallow
CSM_BH09S	13/05/2019	7.4	5.89	57	non-aggressive	non-aggressive	shallow
CSM_BH09S	11/06/2019	6.6	5.82	72	non-aggressive	non-aggressive	shallow
CSM_BH09S	29/07/2019	6.7	5.81	88	non-aggressive	non-aggressive	shallow
CSM_BH09S	28/08/2019	6.8	5.73	49	non-aggressive	non-aggressive	shallow
CSM_BH09S	25/09/2019	6.6	5.56	56	non-aggressive	non-aggressive	shallow
CSM_BH10S	16/04/2019	-	5.15	38	non-aggressive	non-aggressive	offsite shallow
CSM_BH10S	13/05/2019	6.6	4.99	130	mild	non-aggressive	offsite shallow
CSM_BH10S	11/06/2019	5.9	5.49	37	non-aggressive	non-aggressive	offsite shallow
CSM_BH10S	30/07/2019	6.7	5.56	36	non-aggressive	non-aggressive	offsite shallow
CSM_BH10S	29/08/2019	6.1	5.01	19	moderate	mild	offsite shallow
CSM_BH10S	25/09/2019	6.6	5.13	20	moderate	mild	offsite shallow
GASW_BH10	5/06/2019	7.8	7.39	150	non-aggressive	non-aggressive	deep
GASW_BH10	30/07/2019	7	6.67	160	non-aggressive	non-aggressive	deep
GASW_BH10	28/08/2019	7.7	6.74	170	non-aggressive	non-aggressive	deep
GASW_BH10	26/09/2019	7.4	6.45	180	non-aggressive	non-aggressive	deep
GASW_BH11	5/06/2019	6.1	5.82	43	non-aggressive	non-aggressive	shallow
GASW_BH11	30/07/2019	6.3	5.87	100	non-aggressive	non-aggressive	shallow
GASW_BH11	28/08/2019	6.6	5.6	39	non-aggressive	non-aggressive	shallow
GASW_BH11	25/09/2019	6.3	5.38	37	non-aggressive	mild	shallow
GASW_BH23	25/09/2019	7.6	6.59	19	non-aggressive	non-aggressive	shallow
GASW_BH25A	25/09/2019	7.5	8.57	26	non-aggressive	non-aggressive	shallow
GASW_BH7	5/06/2019	5.6	5.77	38	non-aggressive	non-aggressive	shallow
GASW_BH7	30/07/2019	3.9	4.32	41	moderate	mild	shallow
GASW_BH7	28/08/2019	3.5	4.24	29	moderate	mild	shallow
GASW_BH7	25/09/2019	3.5	3.95	35	moderate	mild	shallow
SRT_BH047	16/04/2019	-	7.79	33	non-aggressive	non-aggressive	shallow
SRT_BH047	14/05/2019	8.1	7.68	43	non-aggressive	non-aggressive	shallow
SRT_BH047	7/06/2019	8	7.83	26	non-aggressive	non-aggressive	shallow
SRT-BH047	31/07/2019	7.6	7.67	50	non-aggressive	non-aggressive	shallow
SRT_BH047	30/08/2019	8.1	7.95	22	non-aggressive	non-aggressive	shallow
SRT_BH047	27/09/2019	7.7	7.45	25	non-aggressive	non-aggressive	shallow
SRT_BH052	16/04/2019	-	6.51	45	non-aggressive	non-aggressive	shallow
SRT_BH052	14/05/2019	7.7	6.98	56	non-aggressive	non-aggressive	shallow
SRT_BH052	7/06/2019	8.1	7.59	39	non-aggressive	non-aggressive	shallow
SRT-BH052	31/07/2019	7.6	7.29	42	non-aggressive	non-aggressive	shallow
SRT_BH052	30/08/2019	7.8	9.01	38	non-aggressive	non-aggressive	shallow
SRT_BH052	27/09/2019	7.8	7.39	38	non-aggressive	non-aggressive	shallow
SRT_BH059	17/04/2019	-	6.87	9.7	non-aggressive	non-aggressive	shallow
SRT_BH059	15/05/2019	8.1	6.8	22	non-aggressive	non-aggressive	shallow
SRT_BH059	7/06/2019	7.7	6.87	18	non-aggressive	non-aggressive	shallow
SRT-BH059	31/07/2019	7.8	7.02	26	non-aggressive	non-aggressive	shallow
SRT_BH059	30/08/2019	7.9	6.91	8	non-aggressive	non-aggressive	shallow
SRT_BH059	27/09/2019	8	6.78	10	non-aggressive	non-aggressive	shallow
SRT_BH063	18/04/2019	-	6.66	74	non-aggressive	non-aggressive	offsite deep
SRT_BH063	15/05/2019	8.2	6.59	89	non-aggressive	non-aggressive	offsite deep
SRT_BH063	7/06/2019	7.4	6.6	77	non-aggressive	non-aggressive	offsite deep
SRT-BH063	29/07/2019	7	6.65	66	non-aggressive	non-aggressive	offsite deep
SRT_BH063	28/08/2019	7.8	6.74	66	non-aggressive	non-aggressive	offsite deep
SRT_CBH015	17/04/2019	-	5.31	16	non-aggressive	non-aggressive	shallow
SRT_CBH015	15/05/2019	6.5	5.15	13	non-aggressive	non-aggressive	shallow
SRT_CBH015	7/06/2019	6.1	5.32	29	non-aggressive	non-aggressive	shallow
SRT-CBH015	31/07/2019	6	5.3	37	non-aggressive	non-aggressive	shallow
SRT_CBH015	30/08/2019	6.3	5.19	9.5	non-aggressive	non-aggressive	shallow
SRT_CBH015	27/09/2019	6.3	5.1	10	non-aggressive	non-aggressive	shallow
SRT_CBH017	17/04/2019	-	5.88	8.8	non-aggressive	non-aggressive	shallow
SRT_CBH017	15/05/2019	6.7	5.75	19	non-aggressive	non-aggressive	shallow
SRT_CBH017	7/06/2019	6.8	6.09	12	non-aggressive	non-aggressive	shallow
SRT-CBH017	31/07/2019	6.8	6.22	50	non-aggressive	non-aggressive	shallow
SRT_CBH017	30/08/2019	7	6.47	13	non-aggressive	non-aggressive	shallow
SRT_CBH017	27/09/2019	7.1	5.96	16	non-aggressive	non-aggressive	shallow

Appendix B

Table B6 Groundwate Aggressivity Comparison Table - Concrete Piles

Monitoring well ID	sampling dates	Sulfate (mg/L)	pH (lab)	pH (field)	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
CSM_BH02	16/04/2019	44	-	6.59	51	mild	non-aggressive	deep
CSM_BH02	14/05/2019	38	8.5	6.91	68	mild	non-aggressive	deep
CSM_BH02	6/06/2019	35	7.8	6.98	150	mild	non-aggressive	deep
CSM_BH02	30/07/2019	24	8	7.26	500	mild	non-aggressive	deep
CSM_BH02	29/08/2019	25	7.9	6.75	190	mild	non-aggressive	deep
CSM_BH02	26/09/2019	31	7.8	6.77	160	mild	non-aggressive	deep
CSM_BH04	16/04/2019	55	-	6.48	65	mild	non-aggressive	offsite deep
CSM_BH04	13/05/2019	56	7.3	5.92	56	mild	non-aggressive	offsite deep
CSM_BH04	11/06/2019	56	6.7	5.97	63	mild	non-aggressive	offsite deep
CSM_BH04	30/07/2019	38	7	6.07	110	mild	non-aggressive	offsite deep
CSM_BH04	29/08/2019	45	6.5	5.34	55	mild	non-aggressive	offsite deep
CSM_BH04	26/09/2019	33	8.5	7.57	74	mild	non-aggressive	offsite deep
CSM_BH05	17/04/2019	78	-	6.69	130	mild	non-aggressive	deep
CSM_BH05	13/05/2019	54	8.2	6.57	190	mild	non-aggressive	deep
CSM_BH05	11/06/2019	50	7.4	6.5	220	mild	non-aggressive	deep
CSM_BH05	29/07/2019	50	7.2	6.33	160	mild	non-aggressive	deep
CSM_BH06	18/04/2019	29	-	6.49	180	mild	non-aggressive	offsite deep
CSM_BH06	14/05/2019	23	8	6.33	220	mild	non-aggressive	offsite deep
CSM_BH06	6/06/2019	27	7.2	6.49	210	mild	non-aggressive	offsite deep
CSM_BH06	30/07/2019	22	7.3	6.37	180	mild	non-aggressive	offsite deep
CSM_BH06	28/08/2019	22	8	6.81	200	mild	non-aggressive	offsite deep
CSM_BH06	26/09/2019	15	6.9	5.73	140	mild	non-aggressive	offsite deep
CSM_BH08	18/04/2019	41	-	6.33	93	mild	non-aggressive	offsite deep
CSM_BH08	15/05/2019	42	7.9	6.38	92	mild	non-aggressive	offsite deep
CSM_BH08	6/06/2019	42	7.2	6.61	90	mild	non-aggressive	offsite deep
CSM_BH08	30/07/2019	37	7.3	6.64	110	mild	non-aggressive	offsite deep
CSM_BH08	29/08/2019	32	7.4	6.45	110	mild	non-aggressive	offsite deep
CSM_BH08	26/09/2019	41	7.2	6.28	94	mild	non-aggressive	offsite deep
CSM_BH09S	17/04/2019	270	-	5.72	79	mild	non-aggressive	shallow
CSM_BH09S	13/05/2019	190	7.4	5.89	57	mild	non-aggressive	shallow
CSM_BH09S	11/06/2019	210	6.6	5.82	72	mild	non-aggressive	shallow
CSM_BH09S	29/07/2019	210	6.7	5.81	88	mild	non-aggressive	shallow
CSM_BH09S	28/08/2019	160	6.8	5.73	49	mild	non-aggressive	shallow
CSM_BH09S	25/09/2019	220	6.6	5.56	56	mild	non-aggressive	shallow
CSM_BH10S	16/04/2019	85	-	5.15	38	moderate	mild	offsite shallow
CSM_BH10S	13/05/2019	350	6.6	4.99	130	moderate	mild	offsite shallow
CSM_BH10S	11/06/2019	66	5.9	5.49	37	moderate	mild	offsite shallow
CSM_BH10S	30/07/2019	61	6.7	5.56	36	mild	non-aggressive	offsite shallow
CSM_BH10S	29/08/2019	57	6.1	5.01	19	moderate	mild	offsite shallow
CSM_BH10S	25/09/2019	56	6.6	5.13	20	moderate	mild	offsite shallow
GASW_BH10	5/06/2019	42	7.8	7.39	150	mild	non-aggressive	deep
GASW_BH10	30/07/2019	<5	7	6.67	160	mild	non-aggressive	deep
GASW_BH10	28/08/2019	<5	7.7	6.74	170	mild	non-aggressive	deep
GASW_BH10	26/09/2019	<5	7.4	6.45	180	mild	non-aggressive	deep
GASW_BH11	5/06/2019	42	6.1	5.82	43	mild	non-aggressive	shallow
GASW_BH11	30/07/2019	59	6.3	5.87	100	mild	non-aggressive	shallow
GASW_BH11	28/08/2019	48	6.6	5.6	39	mild	non-aggressive	shallow
GASW_BH11	25/09/2019	46	6.3	5.38	37	moderate	mild	shallow
GASW_BH23	25/09/2019	380	7.6	6.59	19	mild	non-aggressive	shallow
GASW_BH25A	25/09/2019	260	7.5	8.57	26	mild	non-aggressive	shallow
GASW_BH7	5/06/2019	140	5.6	5.77	38	mild	non-aggressive	shallow
GASW_BH7	30/07/2019	150	3.9	4.32	41	very severe	severe	shallow
GASW_BH7	28/08/2019	150	3.5	4.24	29	very severe	severe	shallow
GASW_BH7	25/09/2019	160	3.5	3.95	35	very severe	severe	shallow
SRT_BH047	16/04/2019	15	-	7.79	33	mild	non-aggressive	shallow
SRT_BH047	14/05/2019	11	8.1	7.68	43	mild	non-aggressive	shallow
SRT_BH047	7/06/2019	11	8	7.83	26	mild	non-aggressive	shallow
SRT-BH047	31/07/2019	13	7.6	7.67	50	mild	non-aggressive	shallow
SRT_BH047	30/08/2019	10	8.1	7.95	22	mild	non-aggressive	shallow
SRT_BH047	27/09/2019	11	7.7	7.45	25	mild	non-aggressive	shallow
SRT_BH052	16/04/2019	21	-	6.51	45	mild	non-aggressive	shallow
SRT_BH052	14/05/2019	26	7.7	6.98	56	mild	non-aggressive	shallow
SRT_BH052	7/06/2019	29	8.1	7.59	39	mild	non-aggressive	shallow
SRT-BH052	31/07/2019	29	7.6	7.29	42	mild	non-aggressive	shallow
SRT_BH052	30/08/2019	30	7.8	9.01	38	mild	non-aggressive	shallow
SRT_BH052	27/09/2019	33	7.8	7.39	38	mild	non-aggressive	shallow
SRT_BH059	17/04/2019	15	-	6.87	9.7	mild	non-aggressive	shallow
SRT_BH059	15/05/2019	27	8.1	6.8	22	mild	non-aggressive	shallow
SRT_BH059	7/06/2019	18	7.7	6.87	18	mild	non-aggressive	shallow
SRT-BH059	31/07/2019	17	7.8	7.02	26	mild	non-aggressive	shallow
SRT_BH059	30/08/2019	15	7.9	6.91	8	mild	non-aggressive	shallow
SRT_BH059	27/09/2019	13	8	6.78	10	mild	non-aggressive	shallow
SRT_BH063	18/04/2019	58	-	6.66	74	mild	non-aggressive	offsite deep
SRT_BH063	15/05/2019	49	8.2	6.59	89	mild	non-aggressive	offsite deep
SRT_BH063	7/06/2019	48	7.4	6.6	77	mild	non-aggressive	offsite deep
SRT-BH063	29/07/2019	51	7	6.65	66	mild	non-aggressive	offsite deep
SRT_BH063	28/08/2019	50	7.8	6.74	66	mild	non-aggressive	offsite deep
SRT_CBH015	17/04/2019	52	-	5.31	16	moderate	mild	shallow
SRT_CBH015	15/05/2019	48	6.5	5.15	13	moderate	mild	shallow
SRT_CBH015	7/06/2019	47	6.1	5.32	29	moderate	mild	shallow
SRT-CBH015	31/07/2019	42	6	5.3	37	moderate	mild	shallow
SRT_CBH015	30/08/2019	49	6.3	5.19	9.5	moderate	mild	shallow
SRT_CBH015	27/09/2019	47	6.3	5.1	10	moderate	mild	shallow
SRT_CBH017	17/04/2019	15	-	5.88	8.8	mild	non-aggressive	shallow
SRT_CBH017	15/05/2019	17	6.7	5.75	19	mild	non-aggressive	shallow
SRT_CBH017	7/06/2019	19	6.8	6.09	12	mild	non-aggressive	shallow
SRT-CBH017	31/07/2019	23	6.8	6.22	50	mild	non-aggressive	shallow
SRT_CBH017	30/08/2019	26	7	6.47	13	mild	non-aggressive	shallow
SRT_CBH017	27/09/2019	30	7.1	5.96	16	mild	non-aggressive	shallow

Appendix B
Table B7 Calculated RPDs of field duplicate samples

Field Duplicates (water)
Filter: [Sampled_Date_Time] >= '01 Apr 2019' and [Sampled

Lab Report Number	669059	669059		656080	656080		674722	674722		679636	679636		651825	651825		659250	659250		660130	660130	
Field ID	SRT-CBH015	QC02	RPD	CSM_BH06	QC02	RPD	SRT_CBH015	QC02	RPD	SRT_CBH017	QC02	RPD	CSM_BH08	QC02	RPD	GASW_BH11	QC02	RPD	CSM_BH06	QC04	RPD
Sampled Date/Time	31/07/2019	31/07/2019		14/05/2019	14/05/2019		30/08/2019	30/08/2019		27/09/2019	27/09/2019		18/04/2019	18/04/2019		5/06/2019	5/06/2019		6/06/2019	6/06/2019	
Chem_Group	**ChemName**	**Units**	**EQL**																		
Metals	Arsenic (Filtered)	mg/L	0.001	<0.001	<0.001	0	0.002	0.002	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	0.004	0.004	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	<0.0002	0	<0.0002	<0.0002	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	<0.001	<0.001	0	<0.001	<0.001	0
	Copper (Filtered)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	0.002	0.002	0	0.001	0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
	Lead (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	<0.001	<0.001	0
	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	<0.0001	<0.0001	0
	Nickel (Filtered)	mg/L	0.001	0.009	0.009	0	0.011	0.011	0	0.009	0.009	0	0.002	0.002	0	0.007	0.007	0	0.002	0.002	0	0.02	0.02	0
	Zinc (Filtered)	mg/L	0.005	0.021	0.022	5	0.054	0.053	2	0.025	0.026	4	0.006	0.006	0	0.02	0.015	29	0.022	0.022	0	0.05	0.052	4
BTEXN	Benzene	µg/l	1	<1	<1	0	<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	<1	0	<1	<1	0
	Ethylbenzene	µg/l	1 : 2 (Interlab)	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
	Xylene (o)	µg/l	1 : 2 (Interlab)	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	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	<2	<2	0
	Naphthalene (BTEXN)	µg/l	10 : 5 (Interlab)	<10	<10	0	<10	<10	0	<10	<10	0	<10	<10	0	<10	<10	0	<10	<10	0	<10	<10	0
TRH - NEPM 2013	C6-C10 Fraction	µg/l	20	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0
	>C10-C16 Fraction	µg/l	50 : 100 (Interlab)	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	160	220	32	<50	<50	0
	F3 (>C16-C34 Fraction)	µg/l	100	<100	<100	0	<100	<100	0	300	<100	**100**	<100	<100	0	<100	<100	0	<100	<100	0	<100	<100	0
	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	<100	<100	0
PAHs	Acenaphthene	µg/l	1	<1	<1	0	<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	<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	<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	<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	<1	0	<1	<1	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	<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	<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	<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	<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	<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	<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	<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	<1	<1	0
	Naphthalene-PAH	µg/l	1	<1	<1	0	<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	<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	<1	<1	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: 200 (1-10 x EQL); 50 (10-30 x EQL); 50 (> 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 B7 Calculated RPDs of field duplicate samples

Field Duplicates (water)
Filter: [Sampled_Date_Time] >= '01 Apr 2019' and [Sampled_

Lab Report Number	674722	EM1914568		651825	ES1912362		656080	ES1914810		659250	ES1917381		660130	ES1917968		669059	ES1924197		679636	ES1931406	
Field ID	CSM_BH09S	QC01	RPD	CSM_BH09S	QC01	RPD	CSM_BH09S	QC01	RPD	GASW_BH7	QC01	RPD	CSM_BH08	QC03	RPD	CSM_BH09S	QC01	RPD	CSM_BH09S	QC01	RPD
Sampled Date/Time	28/08/2019	28/08/2019		17/04/2019	17/04/2019		13/05/2019	13/05/2019		5/06/2019	5/06/2019		6/06/2019	6/06/2019		29/07/2019	29/07/2019		25/09/2019	25/09/2019	

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	<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	0.0001	0	<0.0002	<0.0001	0	<0.0002	<0.0001	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	<0.001	<0.001	0	<0.001	<0.001	0
	Copper (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	0.002	0.005	**86**	0.002	0.001	**67**
	Lead (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	<0.001	<0.001	0
	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	<0.0001	<0.0001	0
	Nickel (Filtered)	mg/L	0.001	0.008	0.009	12	0.009	0.008	12	0.004	0.005	22	0.002	0.002	0	0.006	0.006	0	0.006	0.007	15	0.009	0.008	12
	Zinc (Filtered)	mg/L	0.005	0.045	0.041	9	0.042	0.042	0	0.019	0.018	5	0.039	0.04	3	0.041	0.034	19	0.036	0.04	11	0.056	0.048	15
BTEXN	Benzene	µg/l	1	<1	<1	0	<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	<2	0	<1	<2	0	<1	<2	0	<1	<2	0	<1	<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	<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	<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	<2	<2	0	<2	<2	0
	Naphthalene (BTEXN)	µg/l	10 : 5 (Interlab)	<10	<5	0	<10	<5	0	<10	<5	0	<10	<5	0	<10	<5	0	<10	<5	0	<10	<5	0
TRH - NEPM 2013	C6-C10 Fraction	µg/l	20	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0	<20	<20	0
	>C10-C16 Fraction	µg/l	50 : 100 (Interlab)	<50	<100	0	<50	<100	0	<50	<100	0	630	380	50	<50	<100	0	<50	<100	0	<50	<100	0
	F3 (>C16-C34 Fraction)	µg/l	100	<100	<100	0	<100	<100	0	<100	<100	0	400	210	**62**	<100	<100	0	<100	<100	0	<100	<100	0
	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	<100	<100	0
PAHs	Acenaphthene	µg/l	1	<1	<1	0	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<1	<1	0
	Naphthalene-PAH	µg/l	1	<1	<1	0	<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	<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	<1	<1	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: 200 (1-10 x EQL
***Interlab Duplicates are matched on a per compound basis as methods vary between laborat

Appendix B
Table B8 Analytical results of field rinsate and trip blank samples

Field Blanks (water)
Filter: [Sampled_Date_Time] >= '01 Apr 2019' and [Sampled_Date_Time] <= '30 Sep 2019'

Chem_Group	ChemName	Units	EQL													
Lab Report Number				669059	669059	656080	674722	679636	651825	659250	660130	656080	674722	679636	651825	659250	660130
Field ID				TRIPBLANK	RB01	RB01	RB01	RB01	RB01	RB01	RB02	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
Sampled_Date/Time				29/07/2019	31/07/2019	14/05/2019	29/08/2019	26/09/2019	17/04/2019	5/06/2019	8/06/2019	13/05/2019	28/08/2019	25/09/2019	17/04/2019	5/06/2019	8/06/2019
Sample Type				Field_B	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B	Trip_B
BTEXN	Benzene	µg/l	1	<1								<1	<1	<1	<1	<1	<1
	Toluene	µg/L	1	<1								<1	<1	<1	<1	<1	<1
	Ethylbenzene	µg/l	1	<1								<1	<1	<1	<1	<1	<1
	Xylene (o)	µg/l	1	<1								<1	<1	<1	<1	<1	<1
	Xylene (m & p)	µg/l	2	<2								<2	<2	<2	<2	<2	<2
	Xylene Total	µg/l	2	<3								<3	<3	<3	<3	<3	<3
	Naphthalene (BTEXN)	µg/l	5	<10								<10	<10	<10	<10	<10	<10
	BTEX (Sum of Total) - Lab Calc	µg/L	1														
Metals	Arsenic	mg/L	0.001		<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	<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	<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	<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	<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	<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	<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	<0.005						
	Zinc (Filtered)	mg/L	0.005														
TRH - NEPM 1999	C6-C9 Fraction	µg/l	20	<20								<20	<20	<20	<20	<20	<20
TRH - NEPM 2013	F1 (C6-C10 minus BTEX)	µg/l	20	<20								<20	<20	<20	<20	<20	<20
	C6-C10 Fraction	µg/l	20	<20								<20	<20	<20	<20	<20	<20

Appendix B

Table B9 summary of detection and exceedance of contaminants of potential concern (COPC) in groundwater samples

COPC	Analyte Detected	Gasworks contaminant	Onsite human health criteria exceeded	Offsite human health criteria exceeded	Offsite ecological criteria exceeded	Sydney water trade waste criteria exceeded
pH	yes	no	yes	yes	yes	yes
Cyanide	yes	yes	no	no	yes	no
Metals	yes	no	yes	yes	yes	no
Ammonia	yes	yes	no	no	yes	NA
BTEX	yes	yes	yes (vapour)	yes	yes	yes
TRH	yes	yes	no	NA	NA	NA
PAH	yes	yes	no	yes (due to laboratory detection limits higher than criteria)	no	NA
phenol	yes	yes	no	no	no	NA
OCP	no	no	NA	NA	yes (due to laboratory detection limits higher than criteria)	NA
OPP	no	no	NA	NA	yes (due to laboratory detection limits higher than criteria)	NA
PCB	no	no	NA	NA	NA	NA

NA : not applicable as no value available in adopted assessment criteria

The australian drinking water guideline value has been adopted as the onsite and offsite human criterion for pH

The ANZECC (2000) default trigger value for estuaries in South-east Australia has been adopted as the ecological criterion for pH

Appendix C
Borehole logs

ADE CONSULTING GROUP

ENVIRONMENTAL WELL Ambulance Ave Well

PROJECT NUMBER LOR-09-15586
PROJECT NAME Central Station Metro
CLIENT Laing O' Rourke
ADDRESS Ambulance Avenue, Chippendale
DRILLING DATE 23.03.2019

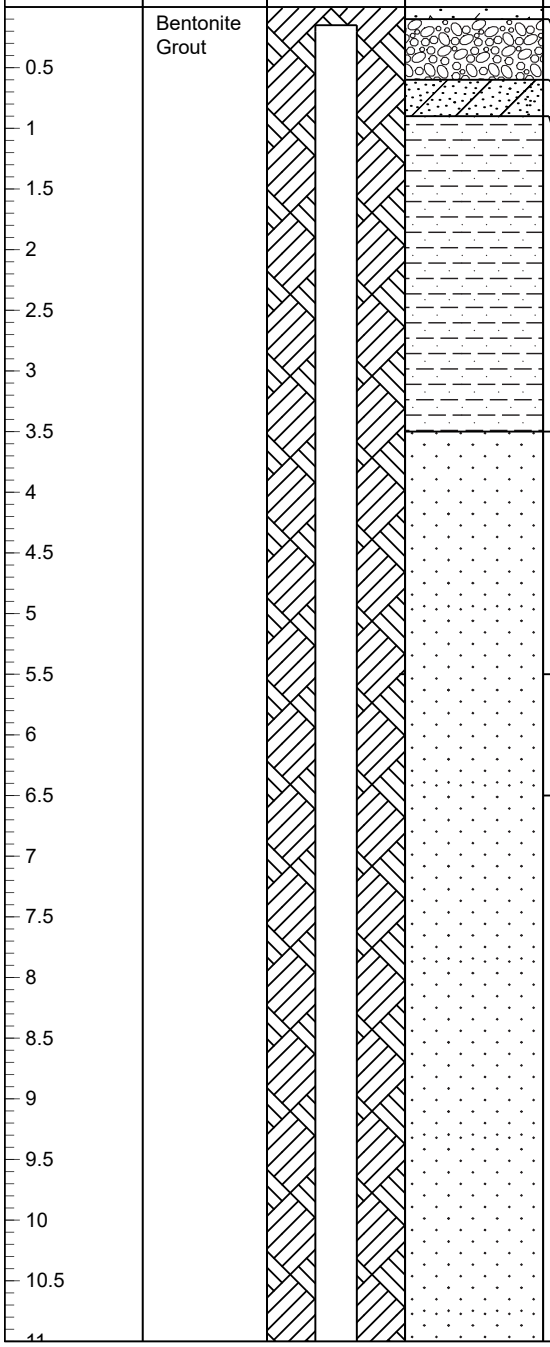
DRILLING COMPANY Rockwell
DRILL RIG Hanjin
DRILLING METHOD Wash Boring
TOTAL DEPTH 35m
DIAMETER 100mm

COORDINATES -33.88337, 151.20492
COORD SYS Geographic
LOGGED BY BS

COMPLETION

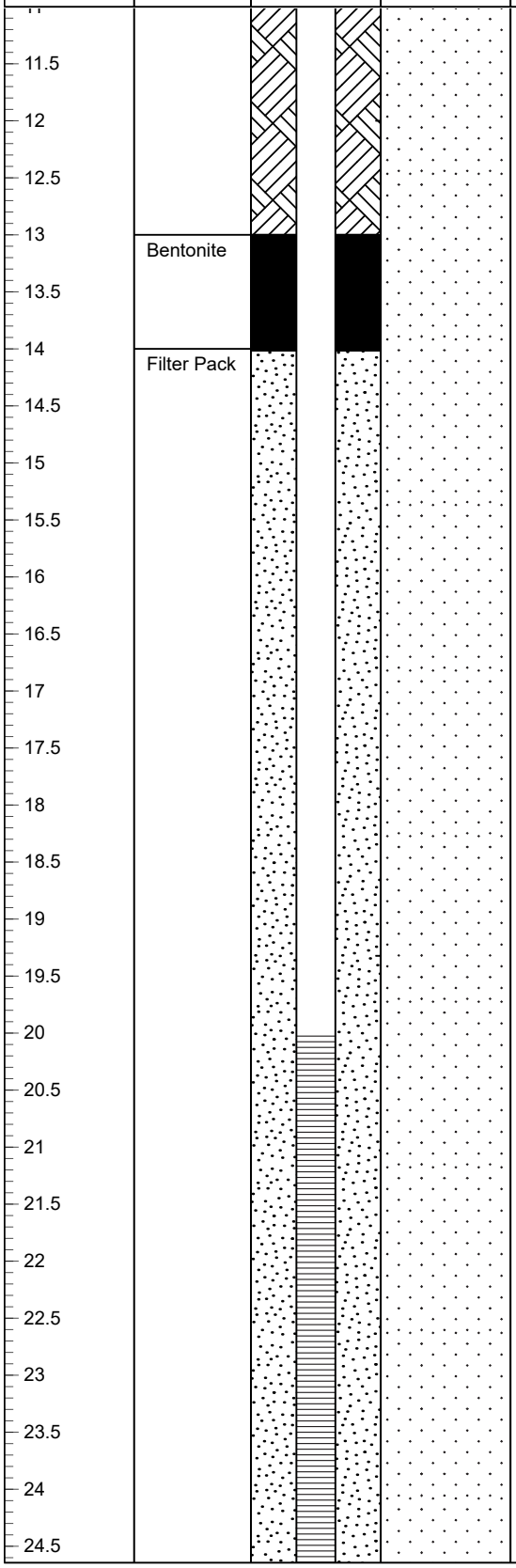
CASING uPVC

SCREEN uPVC Factory Slotted

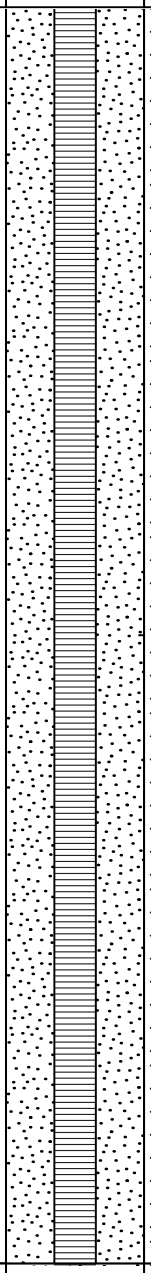


Disclaimer This bore log is intended for environmental not geotechnical purposes.

produced by ESlog.ESdat.net on 11 Apr 2019



Material Description	Additional Observations
	Minor Shale Layer at approx 15m
	Approx 5% water loss at 21m

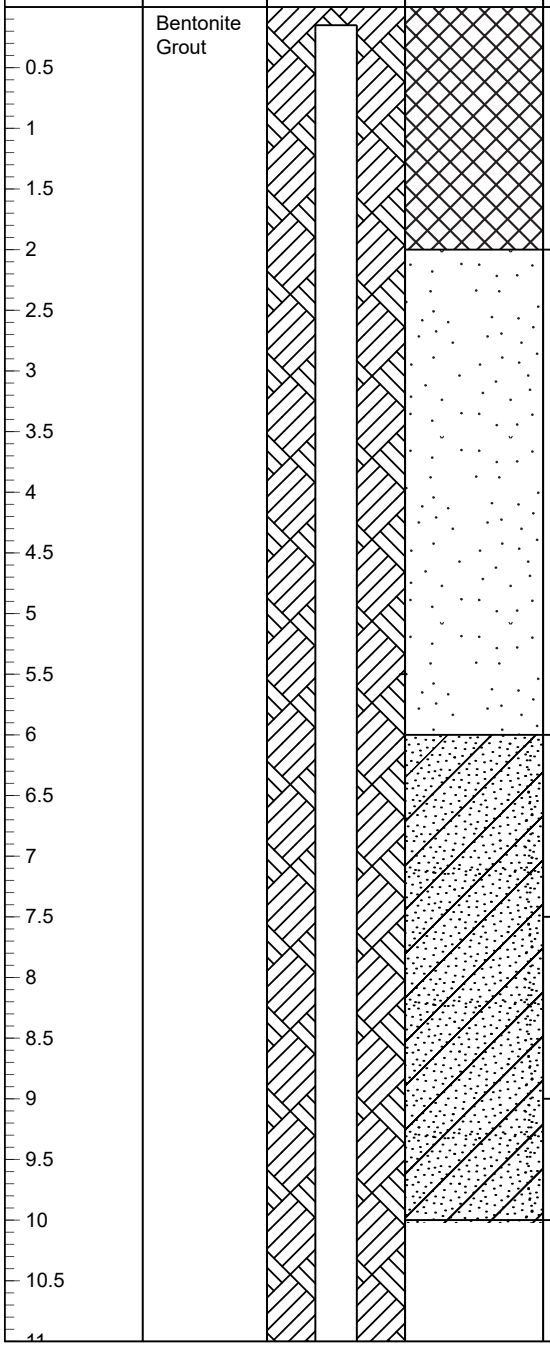
Depth (m)	Well Construction	Well Installation	Graphic Log	Material Description	Additional Observations
25 25.5 26 26.5 27 27.5 28 28.5 29 29.5 30 30.5 31 31.5 32 32.5 33 33.5 34 34.5 35					
35.5 36 36.5 37 37.5 38				Termination Depth at:35 m	

ADE CONSULTING GROUP

ENVIRONMENTAL WELL Eddy Avenue Deep Well

PROJECT NUMBER LOR-09-15586	**DRILLING COMPANY** Rockwell	**COORDINATES** -33.882898, 151.207614
PROJECT NAME Central Station Metro	**DRILL RIG** Hanjin	**COORD SYS** Geographic
CLIENT Laing O' Rourke	**DRILLING METHOD** Wash Boring	**LOGGED BY** NA
ADDRESS Central Station, Chippendale	**TOTAL DEPTH** 35m	
DRILLING DATE 23.02.2019	**DIAMETER** 100mm	

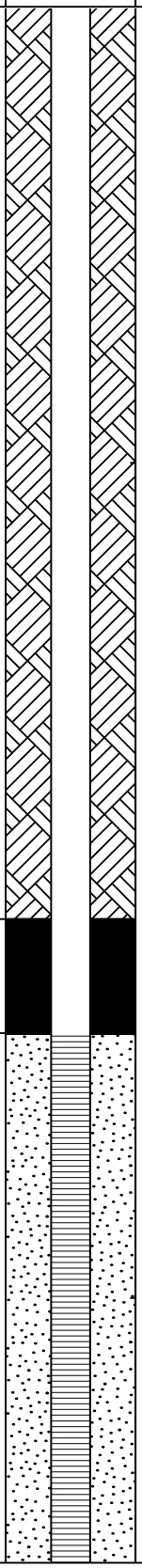
COMPLETION	**CASING** uPVC	**SCREEN** uPVC Factory Slotted

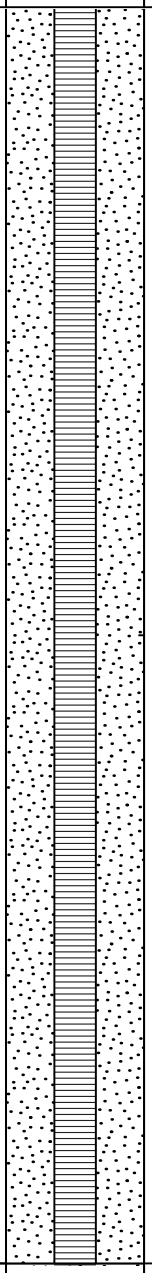


Material Description	Additional Observations
Fill - Gravelly SAND: Coarse to medium grained, well graded, light to medium brown, dry	
Residual - Sand: fine to medium grained, red, trace clay	
Residual - Clayey sand: fine grained, light grey/white	
Residual - Clayey Sand: light to medium brown with red staining	
Residual - Sandy Clay: fine to medium grained, light brown, wet	
Coarse grained, light brown.	

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produced by ESlog.ESdat.net on 23 Apr 2019

Depth (m)	Well Construction	Well Installation	Graphic Log	Material Description	Additional Observations
11.5 12 12.5 13 13.5 14 14.5 15 15.5 16 16.5 17 17.5 18 18.5 19 19.5 20 20.5 21 21.5 22 22.5 23 23.5 24 24.5	Bentonite Filter Pack			Fine grained, medium to dark grey.	

Depth (m)	Well Construction	Well Installation	Graphic Log	Material Description	Additional Observations
25					
25.5				Coarse grained, medium brown.	
26					
26.5					
27					
27.5					
28					
28.5					
29					
29.5					
30					
30.5					
31					
31.5					
32					
32.5					
33					
33.5					
34					
34.5					
35				Termination Depth at:35 m	
35.5					
36					
36.5					
37					
37.5					
38					

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

produced by ESlog.ESdat.net on 23 Apr 2019

ADE CONSULTING GROUP

ENVIRONMENTAL WELL Eddy Avenue Shallow Well

PROJECT NUMBER LOR-09-15586
PROJECT NAME Central Station Metro
CLIENT Laing O' Rourke
ADDRESS Central Station, Chippendale
DRILLING DATE 23.02.2019

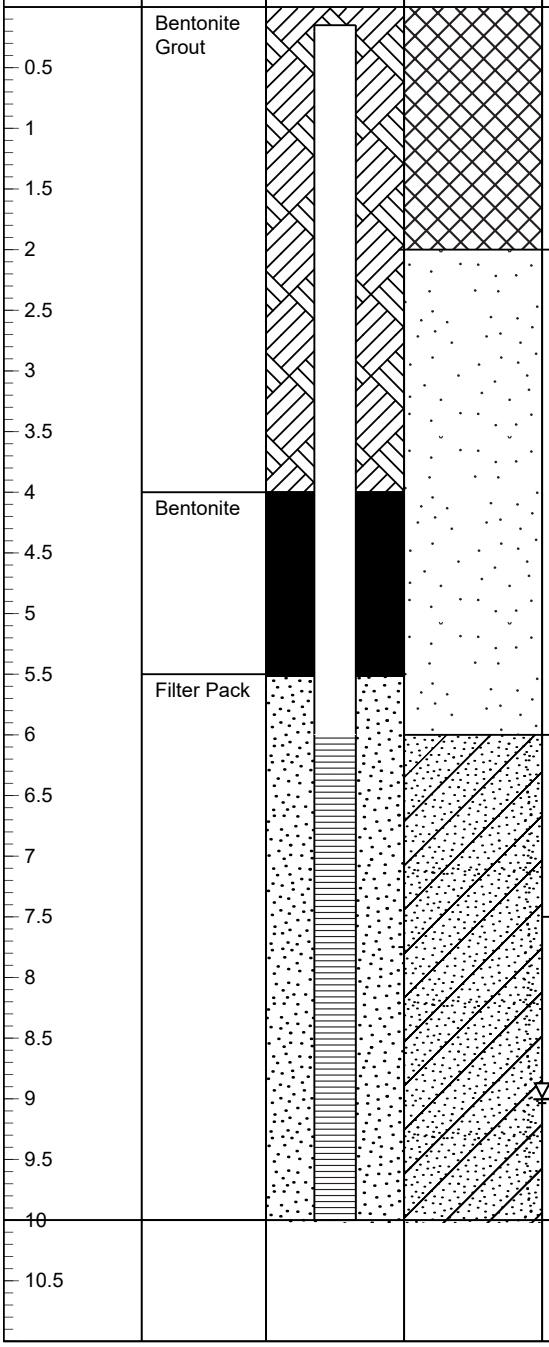
DRILLING COMPANY Rockwell
DRILL RIG Hanjin
DRILLING METHOD Wash Boring
TOTAL DEPTH 35m
DIAMETER 100mm

COORDINATES -33.882898, 151.207614
COORD SYS Geographic
LOGGED BY NA

COMPLETION

CASING uPVC

SCREEN uPVC Factory Slotted



Material Description	Additional Observations
Fill - Gravelly SAND: Coarse to medium grained, well graded, light to medium brown, dry	
Residual - Sand: fine to medium grained, red, trace clay	
Residual - Clayey sand: fine grained, light grey/white	
Residual - Clayey Sand: light to medium brown with red staining	
Residual - Sandy Clay: fine to medium grained, light brown, wet	
Termination Depth at:10 m	

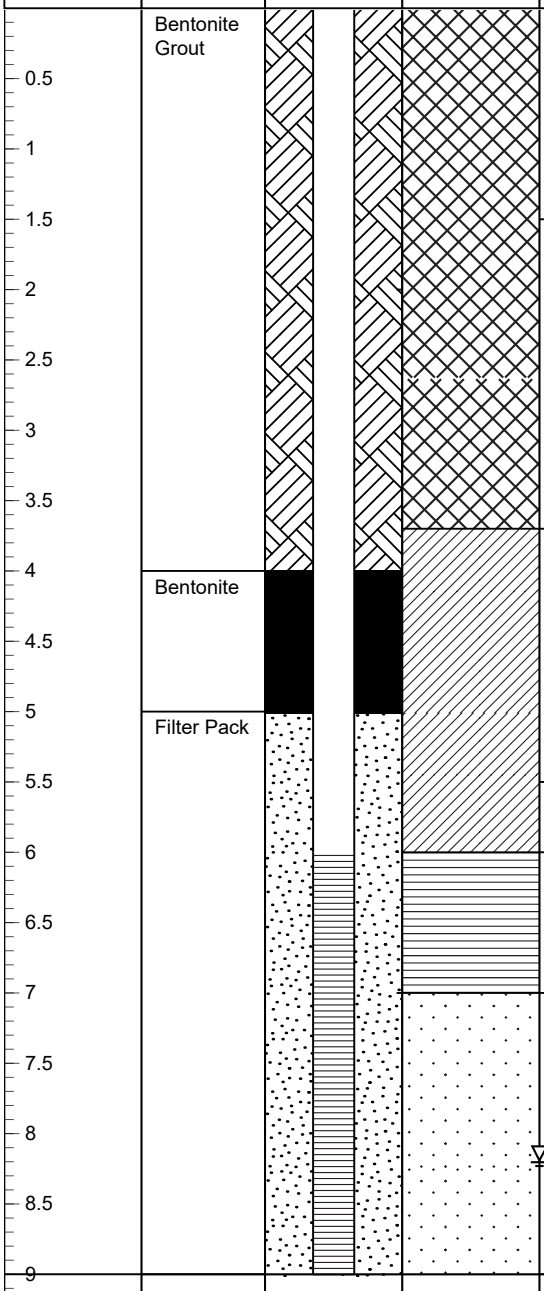
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ENVIRONMENTAL WELL MW1 (BH11)

PROJECT NUMBER LOR-09-14544	**DRILLING COMPANY** Rockwell
PROJECT NAME Central Station Metro	**DRILL RIG** Hanjin
CLIENT Laing O' Rourke	**DRILLING METHOD** Solid Flight Auger
ADDRESS Central Station, Chippendale	**TOTAL DEPTH** 9m
DRILLING DATE 04.04.2019	**DIAMETER** 100mm

COMPLETION **CASING** uPVC **SCREEN** uPVC Factory Slotted



Material Description	Additional Observations
FILL : Gravelly SAND, fine to coarse grained, brown, fine to coarse angular, igneous rock , with ballast	
FILL: Silty SAND, fine to medium grained, yellow-brown	
Silty CLAY: medium to high plasticity, red-brown mottled grey, trace of ironstone gravel	
Silty CLAY: medium to high plasticity, red-grey, with ironstone gravel	
SHALE: red-brown grey, very low - low strength, highly weathered and with ironstone bands	
SANDSTONE: fine to medium grained, brown-grey, low strength, high-moderately weathered	
Termination Depth at:9 m	

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ENVIRONMENTAL WELL MW2 (BH10)

PROJECT NUMBER LOR-09-14544	**DRILLING COMPANY** Rockwell
PROJECT NAME Central Station Metro	**DRILL RIG** Hanjin
CLIENT Laing O' Rourke	**DRILLING METHOD** Solid Flight Auger
ADDRESS Central Station, Chippendale	**TOTAL DEPTH** 25m
DRILLING DATE 08.04.2019 - 09-04-2019	**DIAMETER** 100mm

COMPLETION **CASING** uPVC **SCREEN** uPVC Factory Slotted

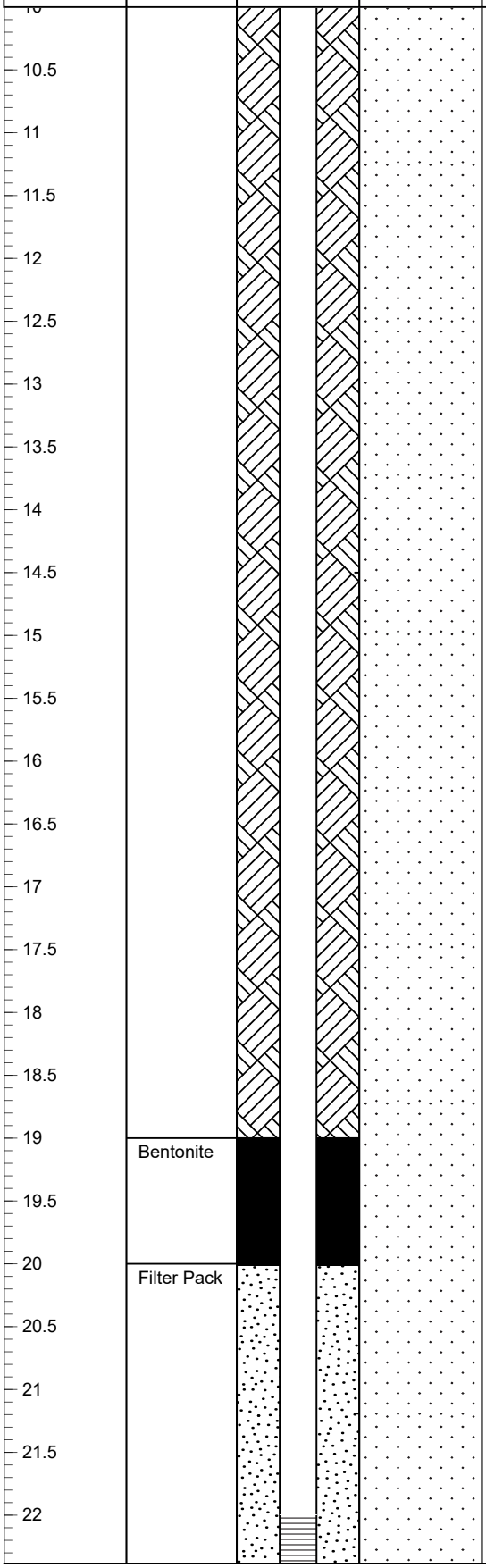
Depth (m)	Well Construction	Well Installation	Graphic Log	Material Description	Additional Observations
0	Bentonite Grout			FILL : Gravelly SAND, fine to coarse grained, dark brown, fine to coarse grained gravel trace of ballast	
1.5				FILL: Sandy CLAY, low plasticity, brown, with fine to coarse grained gravel, trace of timber	
3.5				Silty CLAY:: medium to high plasticity, red-brown mottled light grey, trace of ironstone gravel	
6				SHALE: red-brown, very low - low strength, highly weathered	
7				SHALE: brown , very low strength, highly weathered interbedded, with sandstone	
8.5				SANDSTONE: fine to medium grained, light grey, high strength, slightly weathered to fresh	
10					

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ENVIRONMENTAL WELL MW2 (BH10)

Depth (m)	Well Construction	Well Installation	Graphic Log	Material Description	Additional Observations

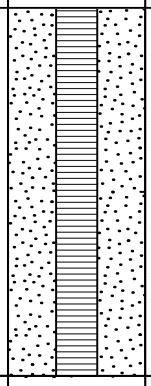


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ENVIRONMENTAL WELL MW2 (BH10)

Depth (m)	Well Construction	Well Installation	Graphic Log	Material Description	Additional Observations
22.5					
23					
23.5					
24					
24.5					
25				Termination Depth at:25 m	
25.5					
26					
26.5					
27					
27.5					
28					
28.5					
29					
29.5					
30					
30.5					
31					
31.5					
32					
32.5					
33					
33.5					
34					
34.5					

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ENVIRONMENTAL WELL MW3 (BH7B)

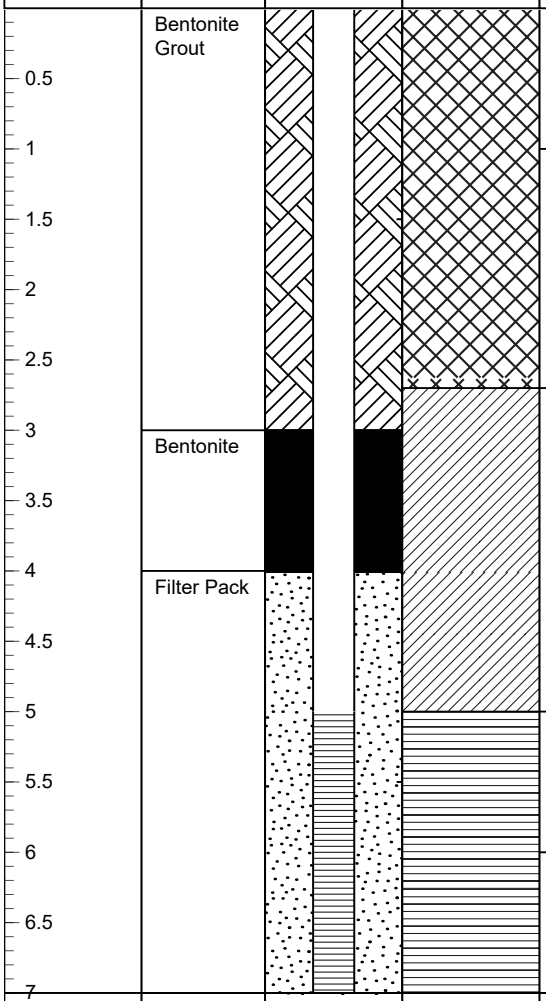
PROJECT NUMBER LOR-09-14544
PROJECT NAME Central Station Metro
CLIENT Laing O' Rourke
ADDRESS Central Station, Chippendale
DRILLING DATE 08.04.2019

DRILLING COMPANY Rockwell
DRILL RIG Hanjin
DRILLING METHOD Solid Flight Auger
TOTAL DEPTH 9m
DIAMETER 100mm

COMPLETION

CASING uPVC

SCREEN uPVC Factory Slotted



Material Description	Additional Observations
FILL: Gravelly SAND,fine to coarse grained, brown- dark grey, fine to medium grained angular gravel	
FILL: Sandy GRAVEL,fine to coarse grained, dark grey, trace of timber, brick and ballast	
Silty CLAY: medium to high plasticity, red-brown,trace of ironstone gravel	
SHALE: brown- light grey, very low - low strength, highly weathered	
SHALE: light grey, low strength, high-moderately weathered	
Termination Depth at:7 m	

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GROUNDWATER MONITORING WELL BH23

PROJECT NUMBER LOR-09-14544	**DRILLING COMPANY** ADE Consulting Group	**HOLE SIZE** 125 mm
PROJECT NAME Additional Investigation Works	**DRILL RIG** Comacchio Geo 205	**WELL DIAMETER** 50 mm
CLIENT Laing O'Rourke	**METHOD** Solid Flight Auger (SFA)	**STICK UP HEIGHT** 1.424 m
ADDRESS Central Station	**TOTAL DEPTH** 2.6 m	**LOGGED BY** DB
DRILLING DATE 16-08-2019		**CHECKED BY** DN
COMPLETION 16-08-2019	**CASING** uPVC	**SCREEN** uPVC Factory Slotted

Drilling Method	Depth (m)	PID	Samples	Sample Type	Is Analysed?	Water	Well Installation	Graphic Log	Material Description	Additional Observations
SFA	0.2	0.9	BH23 - 0.1-0.2m	Soil	N				FILL: Gravelly SAND, medium to coarse grained, light to medium yellow / brown, dry.	
	0.4									
	0.6								FILL: Sandy CLAY, low plasticity, light to medium brown, with gravels, moist	
	0.8									
	1	2.5	BH23 -0.9-1.0m	Soil	N					
	1.2								FILL: Sandy CLAY, low plasticity, light to medium brown, with gravels and organics, dry	
	1.4	11.2	BH23 -1.3-1.4m	Soil	N					Black staining.
	1.6					▽			FILL: Sandy CLAY, low plasticity, light to medium brown / grey, with gravels and organics, wet	Standing water level (SWL) measured on 16.09.19. Water strike.
	1.8									Strong hydrocarbon odour.
	2									
	2.2									
	2.4	15.3	BH23 -2.3-2.4m	Soil	N				FILL: Sandy CLAY, low plasticity, medium grey, with gravels and trace organics, wet	
	2.6								Refusal at 2.6 m. Refusal due to base of concrete tank.	

GROUNDWATER MONITORING WELL BH25a

PROJECT NUMBER LOR-09-14544
PROJECT NAME Additional Investigation Works
CLIENT Laing O'Rourke
ADDRESS Central Station
DRILLING DATE 16-08-2019

DRILLING COMPANY ADE Consulting Group
DRILL RIG Comacchio Geo 205
DRILLING METHOD SFA / PT
TOTAL DEPTH 2.9 m

HOLE SIZE 125 mm SFA / 50 mm PT
WELL DIAMETER 50 mm
STICK UP HEIGHT 1.548 m
LOGGED BY DB
CHECKED BY DN

COMPLETION 16-08-2019
CASING uPVC
SCREEN uPVC Factory Slotted

Drilling Method	Depth (m)	PID	Samples	Sample Type	Is Analysed?	Water	Well Installation	Graphic Log	Material Description	Additional Observations
SFA	0.2								FILL: Gravelly SAND, medium to coarse grained, light to medium yellow / brown, dry	Sample Lost
	0.4									
	0.6									
	0.8									
	1									
	1.2								Concrete	
	1.4									SWL measured on 16.09.19
	1.6					▽			FILL: Sandy CLAY, low plasticity, medium grey mottled yellow with black staining, with gravels, wet	Water Strike. Strong Hydrocarbon Odour
	1.8									
	2									
PT	2.2	84.5	BH25a -2.1-2.2m	Soil	Y					
	2.4									
	2.6									
	2.8	678.1	BH25a -2.7-2.8m	Soil	Y					
	3								Refusal at 2.9 m due to concrete base of tank.	

ADE CONSULTING GROUP

ENVIRONMENTAL WELL Institute Drive Well

PROJECT NUMBER LOR-09-15586
PROJECT NAME Central Station Metro
CLIENT Laing O' Rourke
ADDRESS Institute Drive, Chippendale
DRILLING DATE 06.04.2019

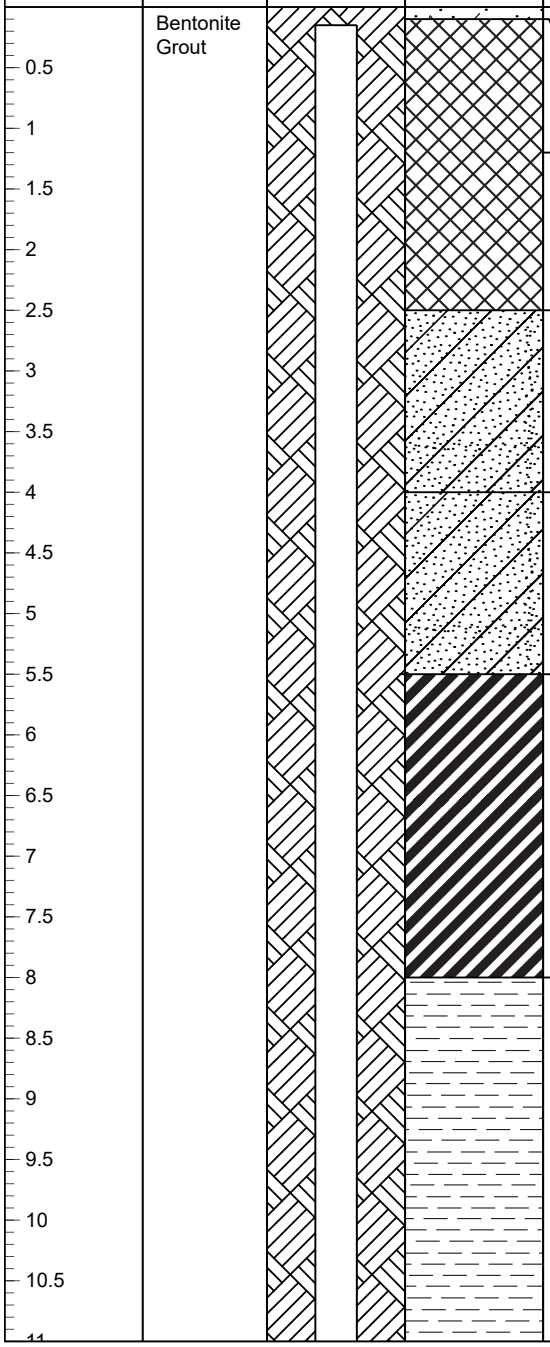
DRILLING COMPANY Rockwell
DRILL RIG Hanjin
DRILLING METHOD Wash Boring
TOTAL DEPTH 35m
DIAMETER 100mm

COORDINATES -33.883376, 151.204913
COORD SYS Geographic
LOGGED BY BS

COMPLETION

CASING uPVC

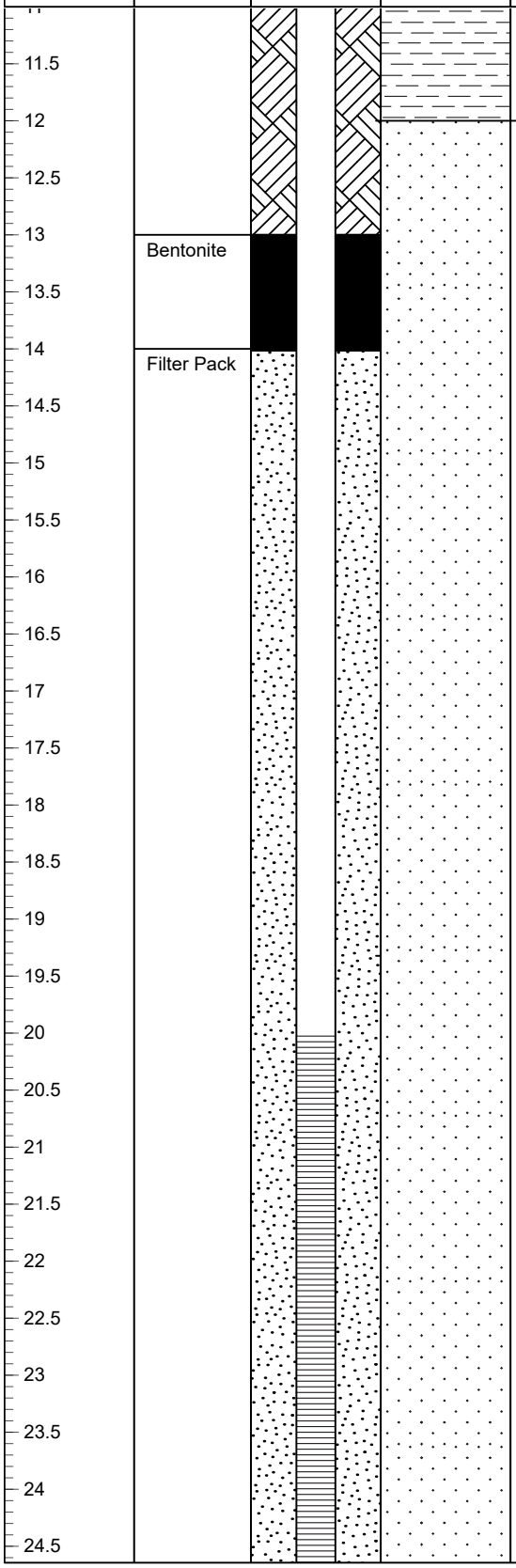
SCREEN uPVC Factory Slotted



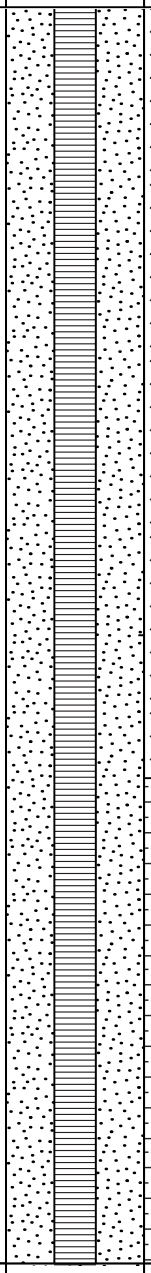
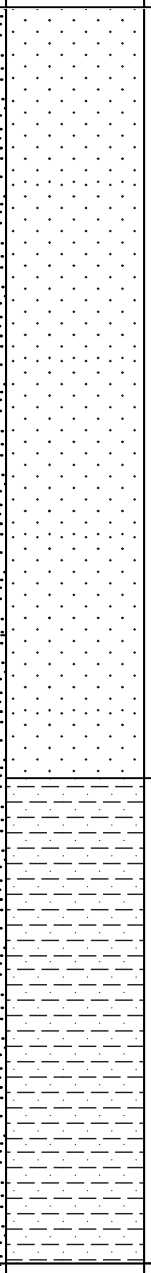
Material Description	Additional Observations
Concrete	Concrete at well location to cover NDD point. Asphalt across surrounding area
Fill - Gravelly SAND: Medium grained, light brown, wet, with gravels and clay	Solid Flight Augur to 8.4 m BGL
Fill - Stabilised SAND: Medium grained, grey, with gravels	
Residual - Clayey SAND, medium to coarse grained, high plasticity, light brown to grey.	
Residual - Sandy CLAY, high plasticity, medium grained, light brown.	
Residual - CLAY, high plasticity, brown, with sand.	
Residual/bedrock - Weathered shale/claystone, grey to light brown, with sandstone	Wash bore drilling to 35 m

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Material Description	Additional Observations
Bedrock - Sandstone, light grey	

Depth (m)	Well Construction	Well Installation	Graphic Log	Material Description	Additional Observations
25 – 25.5 – 26 – 26.5 – 27 – 27.5 – 28 – 28.5 – 29 – 29.5 – 30 – 30.5 – 31 – 31.5 – 32 – 32.5 – 33 – 33.5 – 34 – 34.5 – 35				Bedrock - Sandstone, light grey, trace shale and clay silt	Minor Shale Layer at approx 25m Approx 30%-40% water loss at 33m
35 – 35.5 – 36 – 36.5 – 37 – 37.5 – 38				Termination Depth at:35 m	

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ADE CONSULTING GROUP

ENVIRONMENTAL WELL Rail Corridor Deep Well

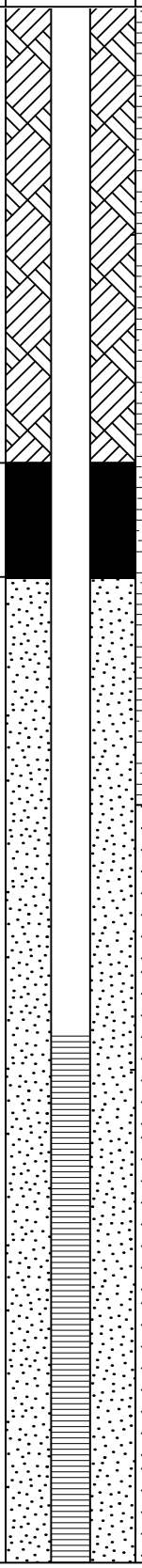
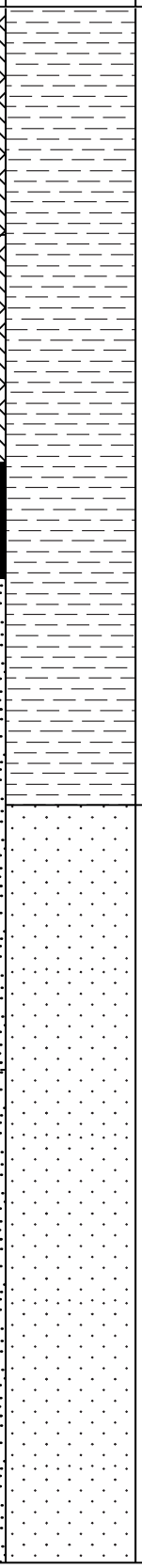
PROJECT NUMBER LOR-09-15586	**DRILLING COMPANY** Rockwell	**COORDINATES**
PROJECT NAME Central Station Metro	**DRILL RIG** Hanjin	**COORD SYS**
CLIENT Laing O' Rourke	**DRILLING METHOD** Wash Boring	**LOGGED BY** CF
ADDRESS Central Station, Chippendale	**TOTAL DEPTH** 35m	
DRILLING DATE 23.01.2019	**DIAMETER** 100mm	

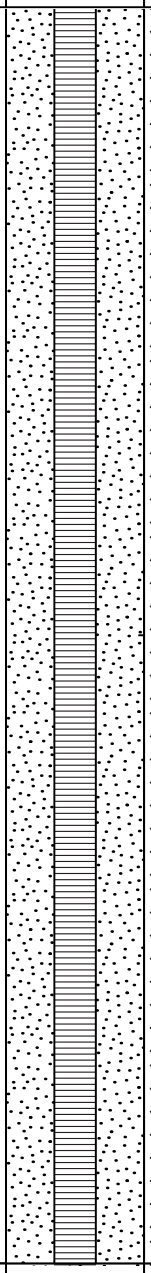
COMPLETION	**CASING** uPVC	**SCREEN** uPVC Factory Slotted

Depth (m)	Well Construction	Well Installation	Graphic Log	Material Description	Additional Observations
0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6.5 7 7.5 8 8.5 9 9.5 10 10.5	Bentonite Grout			Fill - Gravelly SAND: Medium grained, light brown, wet, with gravels and clay Residual - Weathered shale, light to dark grey, darkening with depth	

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Depth (m)	Well Construction	Well Installation	Graphic Log	Material Description	Additional Observations
11.5 12 12.5 13 13.5 14 14.5 15 15.5 16 16.5 17 17.5 18 18.5 19 19.5 20 20.5 21 21.5 22 22.5 23 23.5 24 24.5	Bentonite Filter Pack			Bedrock - Sandstone, light grey	

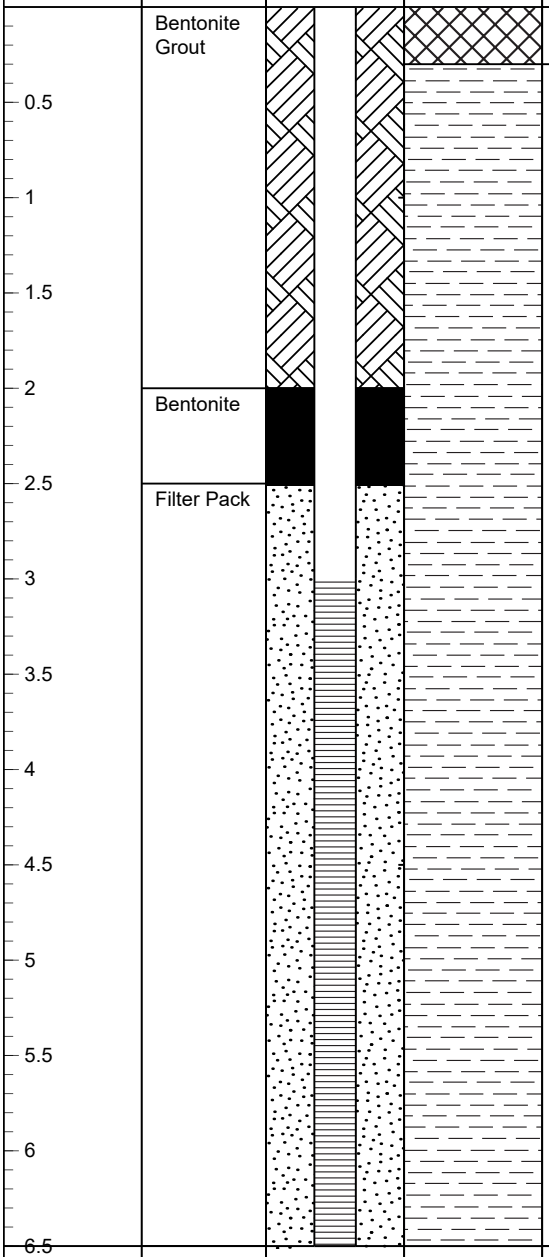
Depth (m)	Well Construction	Well Installation	Graphic Log	Material Description	Additional Observations
25 25.5 26 26.5 27 27.5 28 28.5 29 29.5 30 30.5 31 31.5 32 32.5 33 33.5 34 34.5 35					
35.5 36 36.5 37 37.5 38				Termination Depth at:35 m	

ADE CONSULTING GROUP

ENVIRONMENTAL WELL Rail Corridor Shallow Well

PROJECT NUMBER LOR-09-15586	**DRILLING COMPANY** Rockwell	**COORDINATES**
PROJECT NAME Central Station Metro	**DRILL RIG** Hanjin	**COORD SYS**
CLIENT Laing O' Rourke	**DRILLING METHOD** Solid Flight Augur	**LOGGED BY** CF
ADDRESS Central Station, Chippendale	**TOTAL DEPTH** 6.5m	
DRILLING DATE 22.01.2019	**DIAMETER** 100mm	

COMPLETION	**CASING** uPVC	**SCREEN** uPVC Factory Slotted

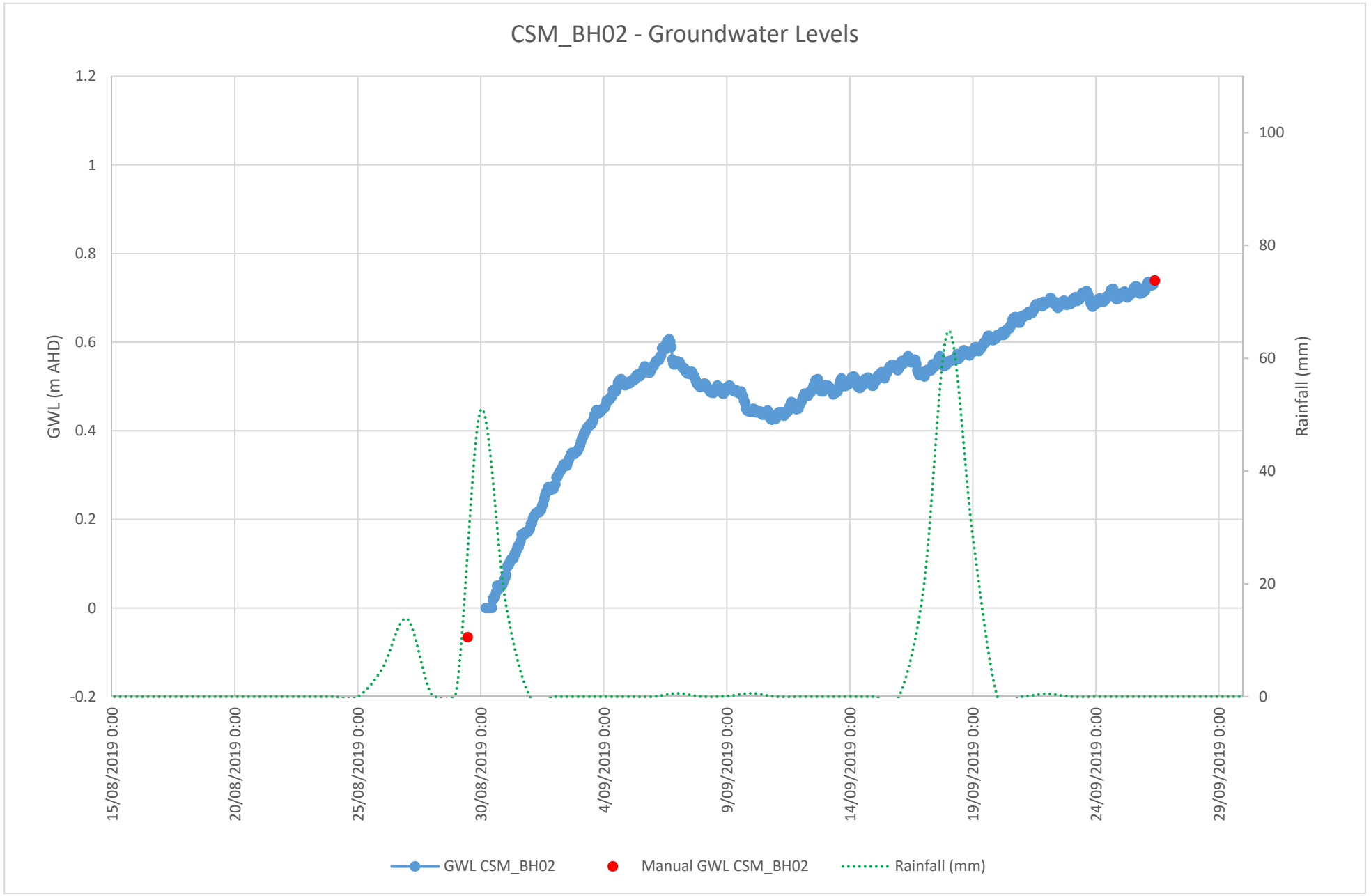


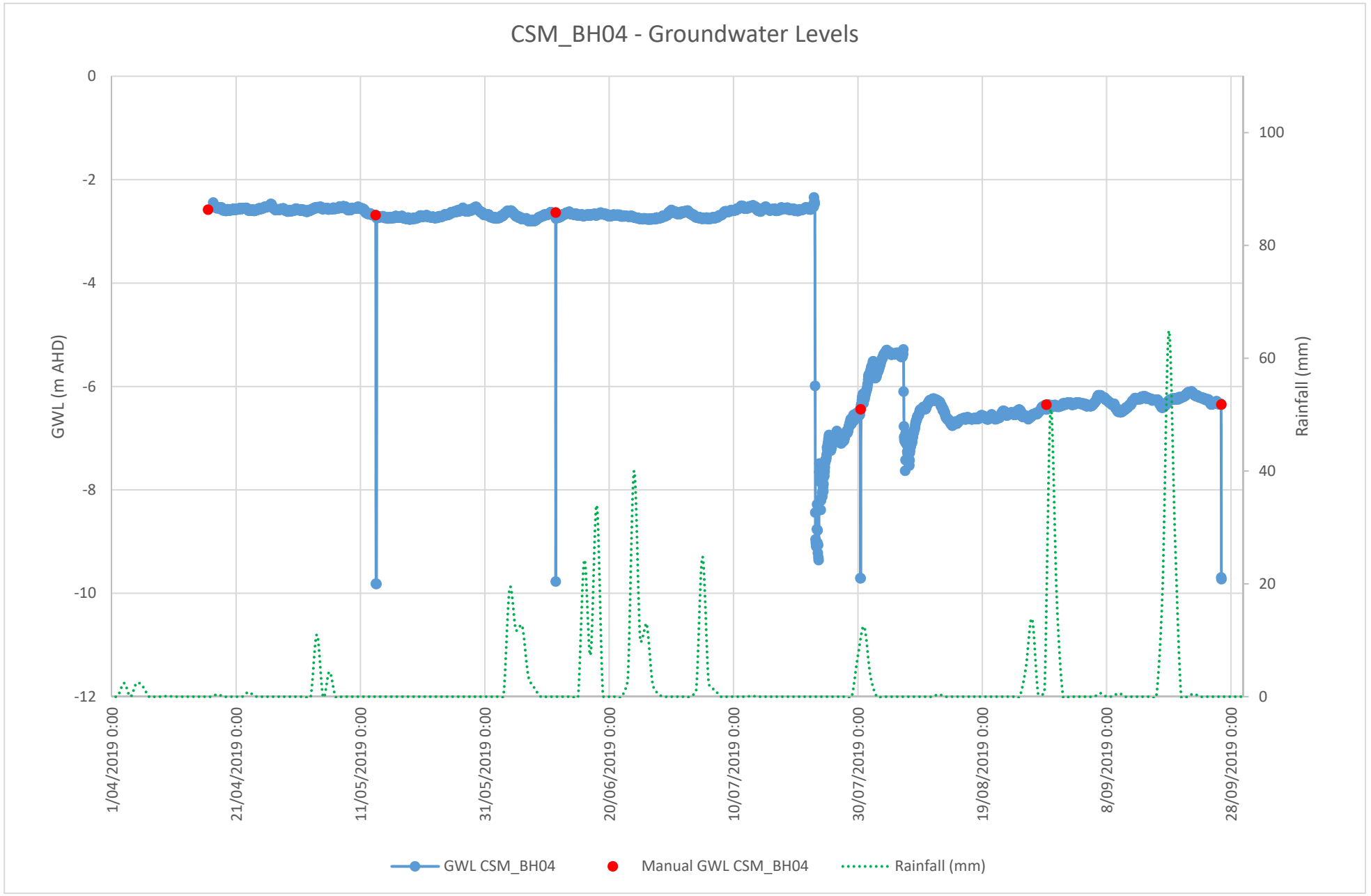
Material Description	Additional Observations
Fill - Gravelly SAND, Coarse grain, dark grey to brown	
Residual - weathered shale: mottled red and grey	
Termination Depth at:6.5 m	

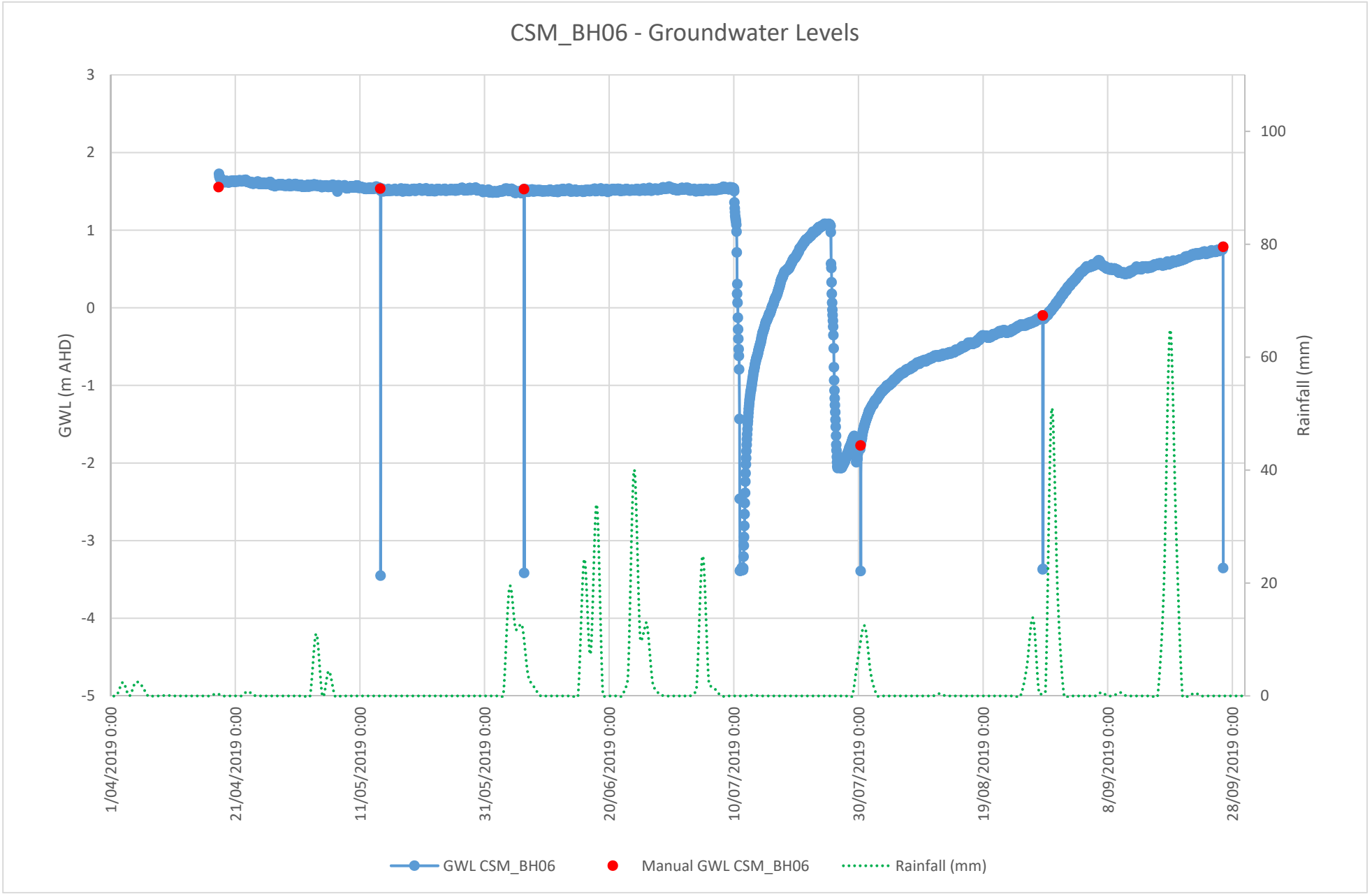
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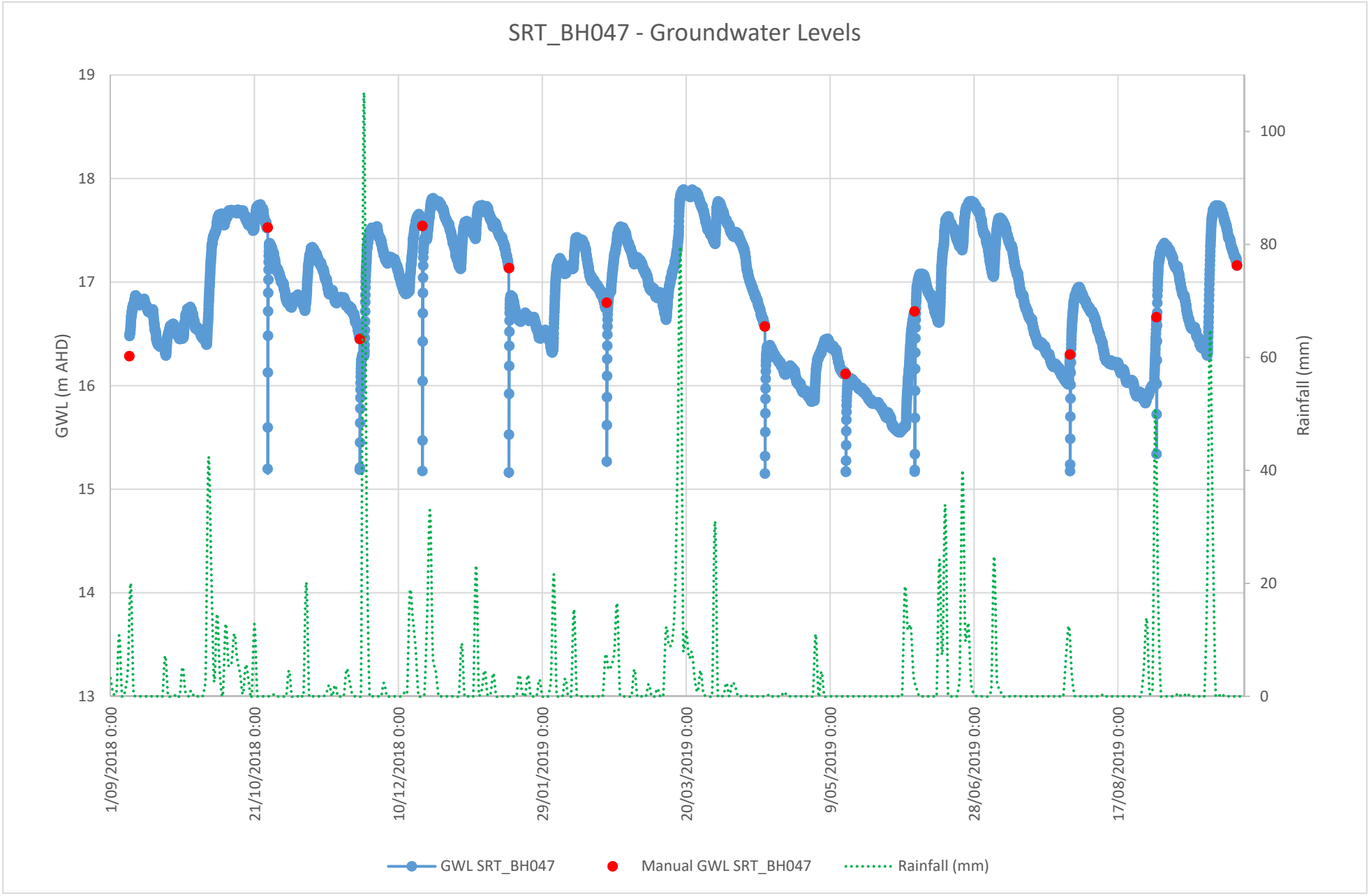
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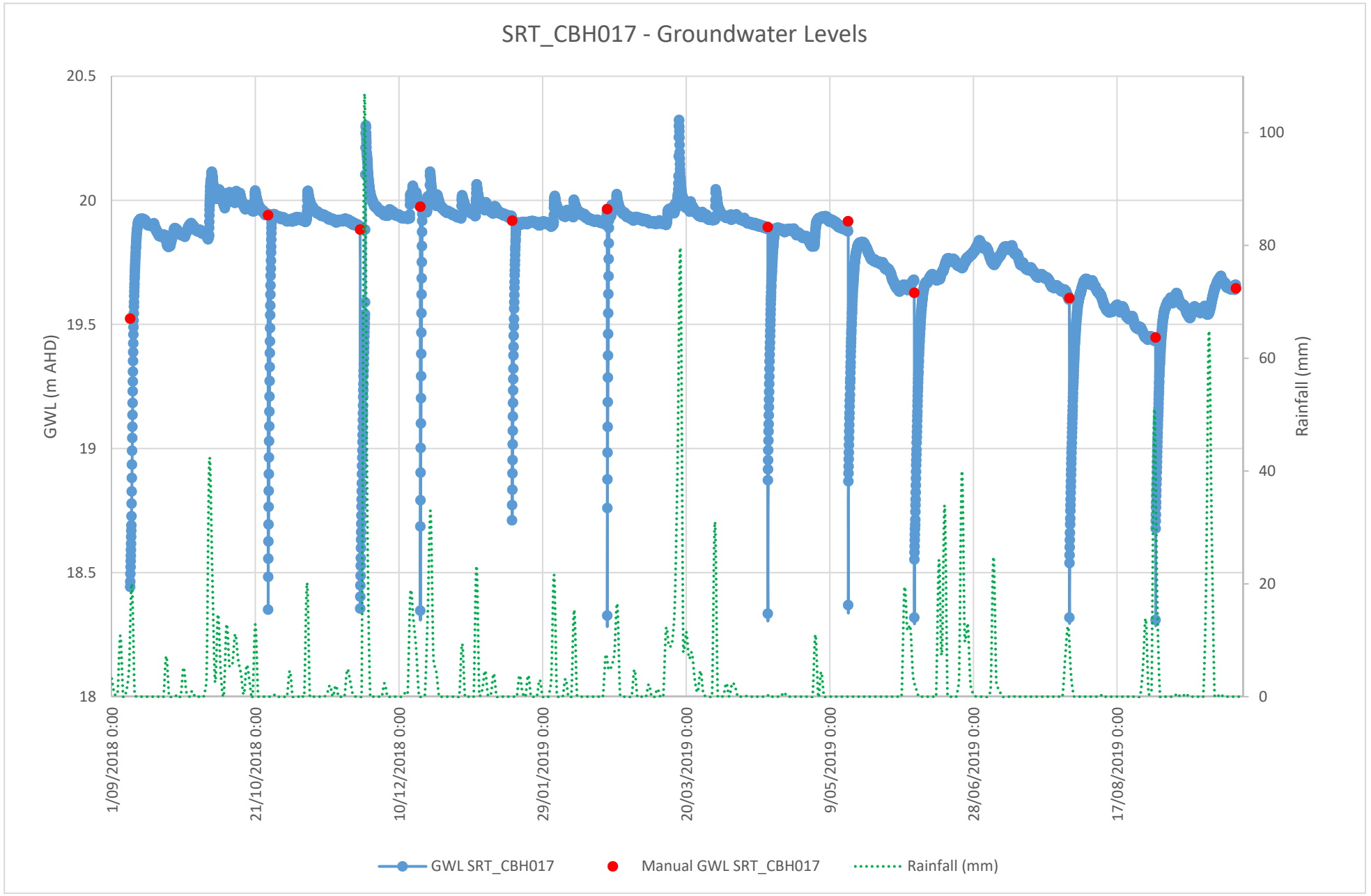
Appendix D
Graphs for groundwater levels and selected analytes / parameters

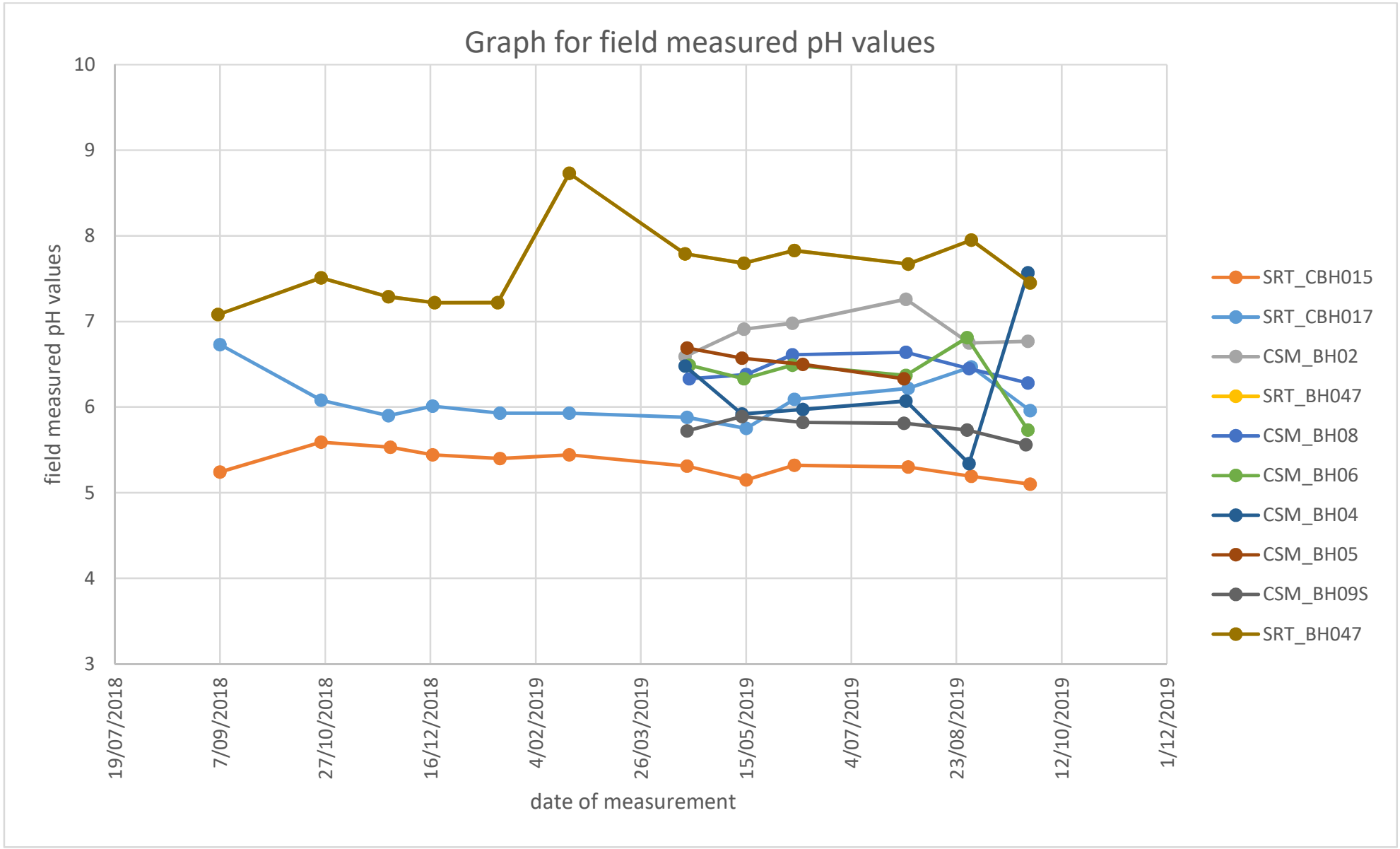

CSM_BH02 - Groundwater Levels
GWL (m AHD)
Rainfall (mm)
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
100
80
60
40
20
0
15/08/2019 0:00
20/08/2019 0:00
25/08/2019 0:00
30/08/2019 0:00
4/09/2019 0:00
9/09/2019 0:00
14/09/2019 0:00
19/09/2019 0:00
24/09/2019 0:00
29/09/2019 0:00
GWL CSM_BH02
Manual GWL CSM_BH02
Rainfall (mm)

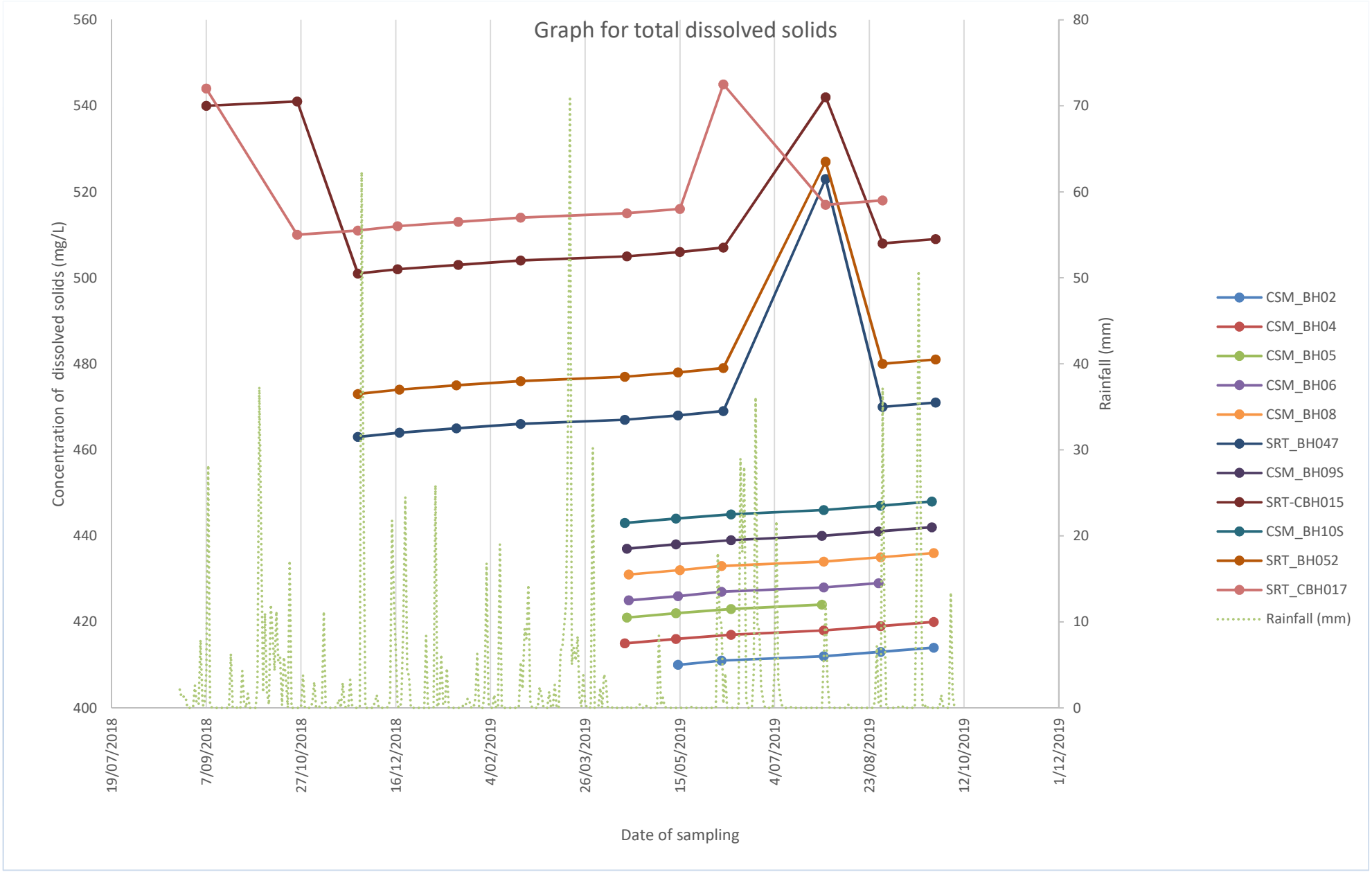

CSM_BH04 - Groundwater Levels
GWL (m AHD)
Rainfall (mm)
0
-2
-4
-6
-8
-10
-12
100
80
60
40
20
0
1/04/2019 0:00
21/04/2019 0:00
11/05/2019 0:00
31/05/2019 0:00
20/06/2019 0:00
10/07/2019 0:00
30/07/2019 0:00
19/08/2019 0:00
8/09/2019 0:00
28/09/2019 0:00
GWL CSM_BH04
Manual GWL CSM_BH04
Rainfall (mm)

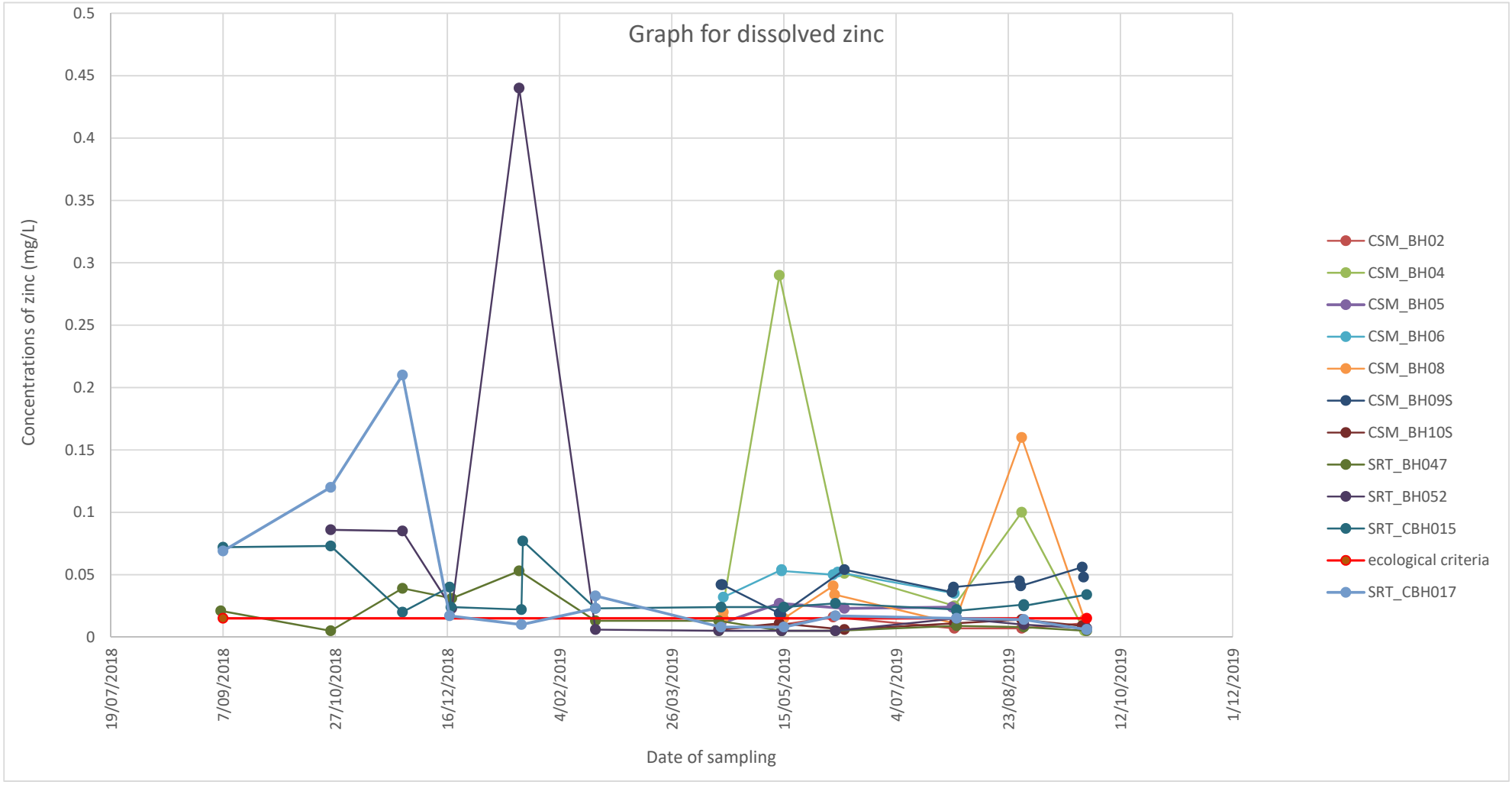

CSM_BH06 - Groundwater Levels
GWL (m AHD)
Rainfall (mm)
3
2
1
0
-1
-2
-3
-4
-5
100
80
60
40
20
0
1/04/2019 0:00
21/04/2019 0:00
11/05/2019 0:00
31/05/2019 0:00
20/06/2019 0:00
10/07/2019 0:00
30/07/2019 0:00
19/08/2019 0:00
8/09/2019 0:00
28/09/2019 0:00
GWL CSM_BH06
Manual GWL CSM_BH06
Rainfall (mm)

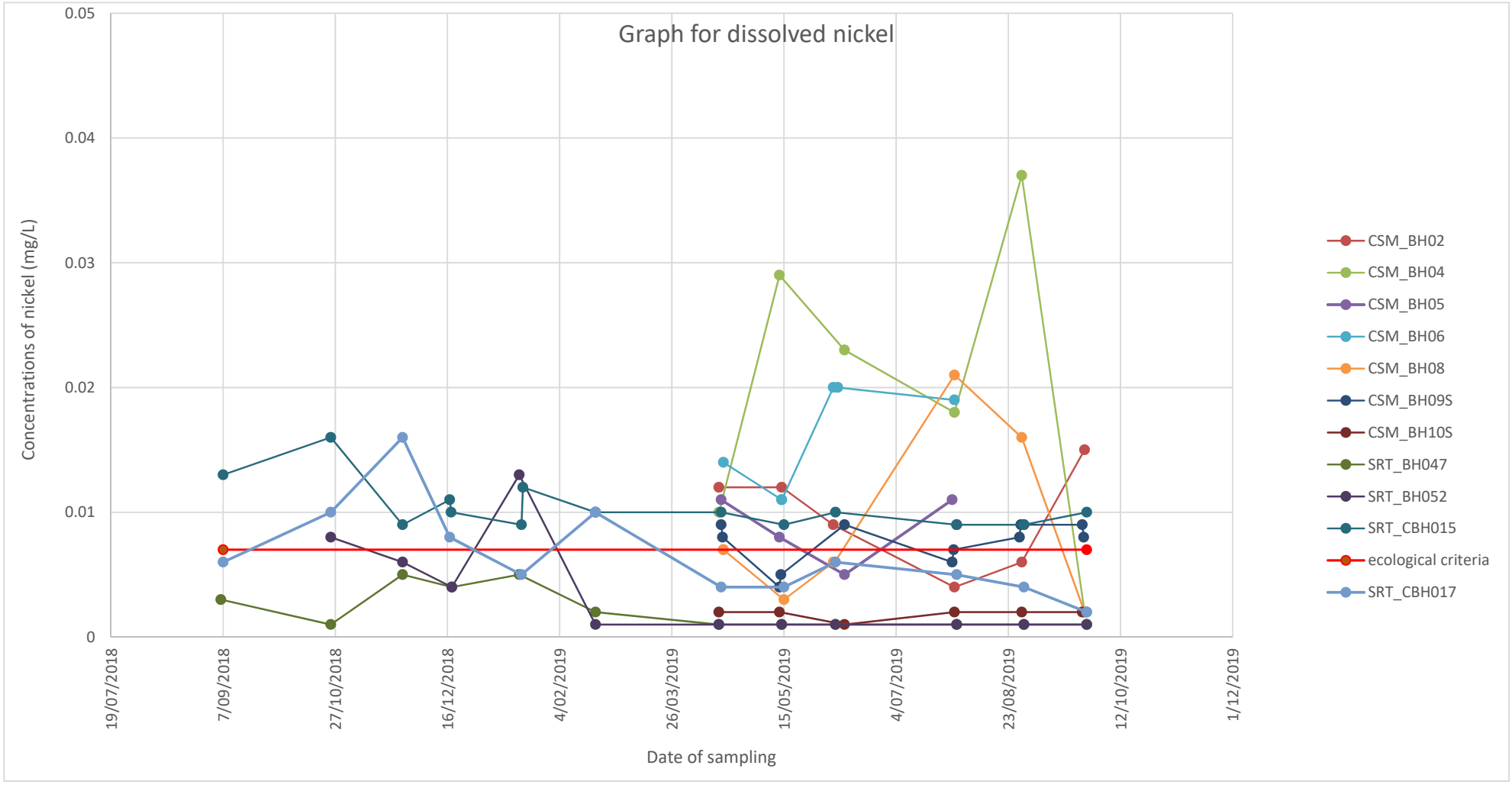

SRT_BH047 - Groundwater Levels
GWL (m AHD)
Rainfall (mm)
19
18
17
16
15
14
13
100
80
60
40
20
0
1/09/2018 0:00
21/10/2018 0:00
10/12/2018 0:00
29/01/2019 0:00
20/03/2019 0:00
9/05/2019 0:00
28/06/2019 0:00
17/08/2019 0:00
GWL SRT_BH047
Manual GWL SRT_BH047
Rainfall (mm)

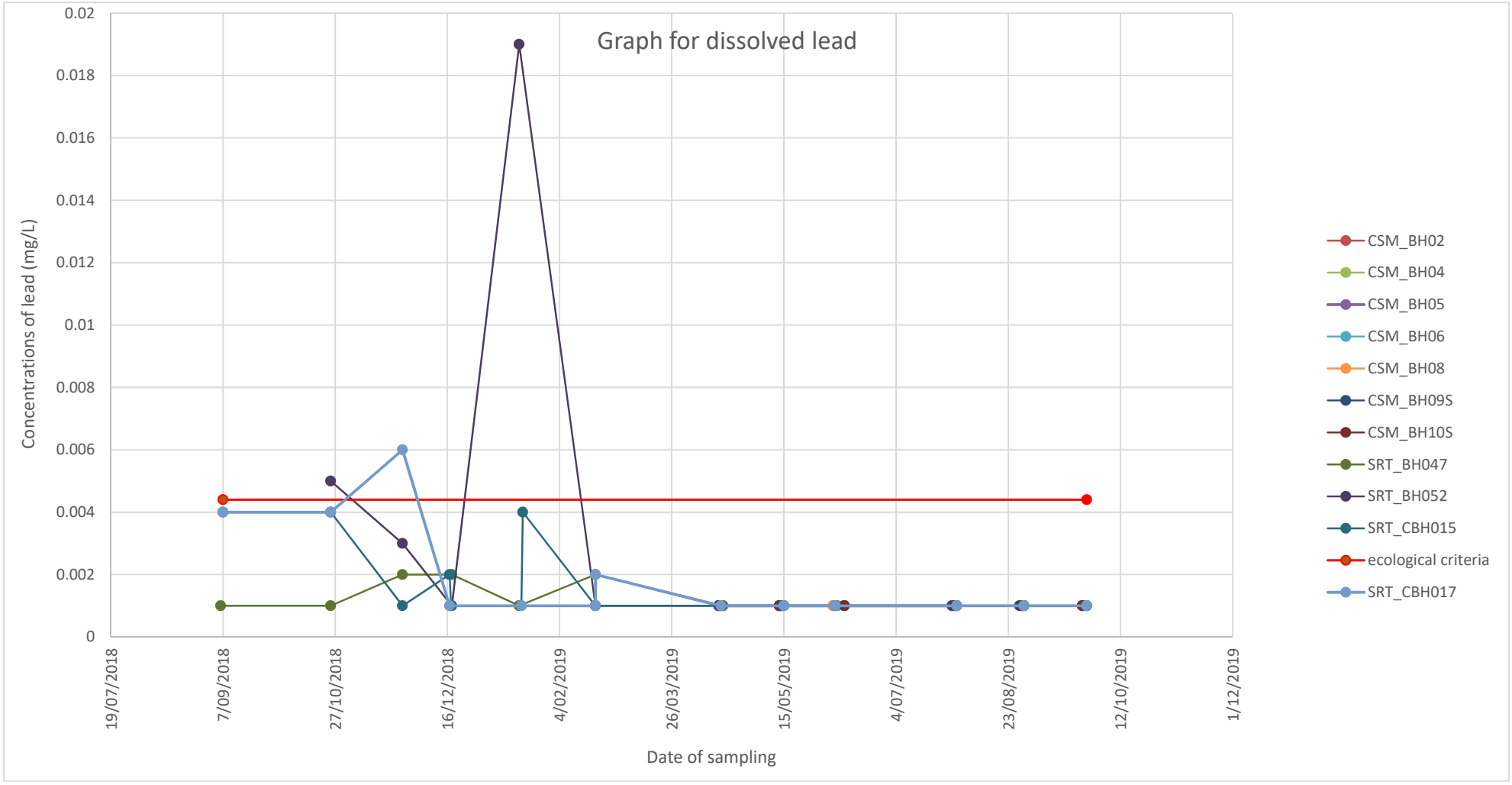

SRT_CBH017 - Groundwater Levels
GWL (m AHD)
Rainfall (mm)
20.5
20
19.5
19
18.5
18
100
80
60
40
20
0
1/09/2018 0:00
21/10/2018 0:00
10/12/2018 0:00
29/01/2019 0:00
20/03/2019 0:00
9/05/2019 0:00
28/06/2019 0:00
17/08/2019 0:00
GWL SRT_CBH017
Manual GWL SRT_CBH017
Rainfall (mm)


Graph for field measured pH values
field measured pH values
10
9
8
7
6
5
4
3
19/07/2018
7/09/2018
27/10/2018
16/12/2018
4/02/2019
26/03/2019
15/05/2019
4/07/2019
23/08/2019
12/10/2019
1/12/2019
date of measurement
SRT_CBH015
SRT_CBH017
CSM_BH02
SRT_BH047
CSM_BH08
CSM_BH06
CSM_BH04
CSM_BH05
CSM_BH09S
SRT_BH047


Graph for total dissolved solids
Concentration of dissolved solids (mg/L)
Rainfall (mm)
Date of sampling
560
540
520
500
480
460
440
420
400
80
70
60
50
40
30
20
10
0
19/07/2018
7/09/2018
27/10/2018
16/12/2018
4/02/2019
26/03/2019
15/05/2019
4/07/2019
23/08/2019
12/10/2019
1/12/2019
CSM_BH02
CSM_BH04
CSM_BH05
CSM_BH06
CSM_BH08
SRT_BH047
CSM_BH09S
SRT-CBH015
CSM_BH10S
SRT_BH052
SRT_CBH017
Rainfall (mm)


Graph for dissolved zinc
Concentrations of zinc (mg/L)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
19/07/2018
7/09/2018
27/10/2018
16/12/2018
4/02/2019
26/03/2019
15/05/2019
4/07/2019
23/08/2019
12/10/2019
1/12/2019
Date of sampling
CSM_BH02
CSM_BH04
CSM_BH05
CSM_BH06
CSM_BH08
CSM_BH09S
CSM_BH10S
SRT_BH047
SRT_BH052
SRT_CBH015
ecological criteria
SRT_CBH017


Graph for dissolved nickel
Concentrations of nickel (mg/L)
0.05
0.04
0.03
0.02
0.01
0
19/07/2018
7/09/2018
27/10/2018
16/12/2018
4/02/2019
26/03/2019
15/05/2019
4/07/2019
23/08/2019
12/10/2019
1/12/2019
Date of sampling
CSM_BH02
CSM_BH04
CSM_BH05
CSM_BH06
CSM_BH08
CSM_BH09S
CSM_BH10S
SRT_BH047
SRT_BH052
SRT_CBH015
ecological criteria
SRT_CBH017


Graph for dissolved lead
Concentrations of lead (mg/L)
0.02
0.018
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
19/07/2018
7/09/2018
27/10/2018
16/12/2018
4/02/2019
26/03/2019
15/05/2019
4/07/2019
23/08/2019
12/10/2019
1/12/2019
Date of sampling
CSM_BH02
CSM_BH04
CSM_BH05
CSM_BH06
CSM_BH08
CSM_BH09S
CSM_BH10S
SRT_BH047
SRT_BH052
SRT_CBH015
ecological criteria
SRT_CBH017

Appendix E
Calibration certificates

Multi Parameter Water Meter

airmet

Air-Met Scientific Pty Ltd
1300 137 067

Instrument **YSI Quatro Pro Plus**
Serial No. **18J104328**

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 9.83
2. pH 7.00		pH 7.00		320613	pH 6.87
3. pH 4.00		pH 4.00		324985	pH 3.95
4. mV		229.6mV		325420/325421	234.2mV
5. EC		2.76mS		324347	2.77mS
6. D.O		0.00ppm		10175	0.01ppm
7. Temp		21.7C		MultiTherm	21.9°C

Calibrated by: Sarah Lian

Calibration date: **15/04/2019**

Next calibration due: **15/05/2019**

Oil / Water Interface Meter

Instrument **Geotech Interface Meter (60M)**
Serial No. **4037**

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: K. Boardman **Kylie Boardman**

Calibration date: **11/04/2019**

Next calibration due: **11/05/2019**

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 18L101819

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 10.03
2. pH 7.00		pH 7.00		320613	pH 6.90
3. pH 4.00		pH 4.00		324985	pH 3.87
4. mV		231.8mV		325420/325421	232.2mV
5. EC		2.76mS		322349	2.76mS
6. D.O		0.00ppm		329994	0.01ppm
7. Temp		21.2°C		MultiTherm	20.8°C

Calibrated by: Sarah Lian

Calibration date: 10/05/2019

Next calibration due: 9/06/2019

Oil / Water Interface Meter

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Instrument **Geotech Interface Meter (60M)**
Serial No. **4439**

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: **9/05/2019**

Next calibration due: **8/07/2019**

Oil / Water Interface Meter

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Instrument **Geotech Interface Meter (60M)**
Serial No. **4439**

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: **29/05/2019**

Next calibration due: **28/07/2019**

Multi Parameter Water Meter

Instrument **YSI Quatro Pro Plus**
Serial No. **18G103121**

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 post-sampling bump test

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 9.68
2. pH 7.00		pH 7.00		330737	pH 7.03
3. pH 4.00		pH 4.00		324985	pH 4.11
4. mV		236.2mV		324355/325421	233.6mV
5. EC		2.76mS		322349	2.75mS
6. D.O		0.00ppm		329994	0.00ppm
7. Temp		20.9°C		MultiTherm	20.7°C

Calibrated by: K Boardman **Kylie Boardman**

Calibration date: **3/06/2019**

Next calibration due: **3/07/2019**

Multi Parameter Water Meter

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Instrument **YSI Quatro Pro Plus**
Serial No. **18L102024**

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		330737	pH 7.02
2. pH 4.00		pH 4.00		324985	pH 4.06
3. pH 10.00		pH 10.00		324189	pH 9.83
3. mV		234mV		325420/325421	234.4mV
4. EC		2.76mS		329027	2.75mS
5. D.O		0.00ppm		329994	0.00ppm
6. Temp		19.9°C		MultiTherm	19.7°C

Calibrated by: Sarah Lian **Sarah Lian**

Calibration date: **25/07/2019**

Next calibration due: **24/08/2019**

Oil / Water Interface Meter

Instrument **Geotech Interface Meter (60M)**
Serial No. **3963**

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

Calibration date: **25-Jul-19**

Next calibration due: **24-Sep-19**

Oil / Water Interface Meter

Instrument Geotech Interface Meter (60M)
Serial No. 4439

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: Olivia Viant

Calibration date: 22/08/2019

Next calibration due: 21/10/2019

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		330737	pH 7.09
2. pH 4.00		pH 4.00		330734	pH 3.96
3. pH 10.00		pH 10.00		324189	pH 9.62
3. mV		231.8mV		325420/325421	231.7mV
4. EC		2.76 mS		329027	2.76mS
5. D.O		0.00ppm		329994	0.16ppm
6. Temp		21.8°C		MultiTherm	21.3°C

Calibrated by: **Sen Philip**

Calibration date: **26/08/2019**

Next calibration due: **25/09/2019**

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 18J104332

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 9.45
2. pH 7.00		pH 7.00		330737	pH 7.11
3. pH 4.00		pH 4.00		330734	pH 4.18
4. mV		236.2mV		325420/325421	231.1mV
5. EC		2.76mS		329027	2.75mS
6. D.O		0.00ppm		329994	0.00ppm
7. Temp		19.1°C		MultiTherm	19.5°C

Calibrated by: Sarah Lian **Sarah Lian**

Calibration date: **25/09/2019**

Next calibration due: **25/10/2019**

Oil / Water Interface Meter

Instrument **Interface Meter (60M)**
Serial No. **288052**

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	✓	cuts patched with vulcan tape
		✓	
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.

Tested by: Sarah Lian **Sarah Lian**

Test date: **24/09/2019**

Next Test due: **22/03/2020**

Appendix F
Groundwater purging sheets

Purging and Sampling Record

Bore ID: ART_BH047

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 4.739 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 / J. Tomlinson	Flow Cell: Y / N — Pump Depth: 6.5 m	Ref.datum: ..... — Well Cap Secure? Y/N
Date: 16/4/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.94 m
Round April 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (959)	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*	-		
9002	0.5	5.02	1.78	456.1	8.42	80.7	20.8		Clear and colourless.
1005	1.0	5.18	1.42	451.1	8.11	84.7	20.9		
1008	1.5	5.40	1.33	430.1	7.90	87.7	20.9		
1011	2.0	5.51	1.37	417.1	7.82	89.2	20.9		
1014	2.5	5.63	1.48	409.7	7.80	91.7	20.7		
1017	3.0	5.79	1.95	398.1	7.79	94.2	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	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

SRI

Bore ID: BH052

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peripump	SWL: 5.938 m — Logic Check: .....
Project: Central Station Main Works	Sample Method: low flow	Screen: From:.....to..... m — Stick Up: - m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: - — Bore Diam.: 50 mm
Sampler: T. Nham / J. Tomlinson	Flow Cell: Y / N — Pump Depth: 7.3 m	Ref.datum: - — Well Cap Secure? Y
Date: 16/4/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 7.85 m
Round April 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (900)	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*	-		
904	1.0	6.13	9.93	280.7	7.44	129.3	20.8		Clear and Colourless
908	2.0	6.35	8.63	281.7	6.67	127.3	20.8		
912	3.0	6.63	8.38	296.1	6.51	125.1	20.8		
915	3.5	6.71	2.32	~~291.7~~	6.47	~~94.1~~	20.9		
918	4.0	6.82	1.90	297.6	6.48	35.1	20.8		
921	4.5	7.02	1.87	~~306.2~~	6.50	17.2	20.8		
924	5.0	7.12	1.73	317.2	6.51	9.3	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 / Preservatives	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				

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	SWL: 3.568 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 / J. Tomlinson	Flow Cell: Y / N — Pump Depth: 5.8 m	Ref.datum: ..... — Well Cap Secure? Yes
Date: 17/4/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.00 m
Round April 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (1137)	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*	-		
1137	1.0	3.87	3.41	402.8	6.83	163.9	21.6		Clear and Colourless, No odour or Sheen.
1142	2.0	4.17	3.33	402.9	6.88	162.2	21.6		
1147	3.0	4.49	3.30	403.1	6.89	161.2	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_BH06J

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Geocentor	SWL: 10.772 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.: 150 mm
Sampler: T. Nham / J. Tomlinson	Flow Cell: Y / N — Pump Depth:.....m	Ref.datum: ..... — Well Cap Secure? Yes
Date: 18/4/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 14.56 m
Round April 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (730.....)	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*	-		
735	1.0	11.08	5.82	769	6.59	123.4	21.3		Clear and Colorless
738	1.5	11.23	5.76	770	6.59	127.0	21.4		
741	2.0	11.37	6.08	770	6.61	129.9	21.4		
744	2.5	11.51	6.09	770	6.63	132.7	21.4		
747	3.0	11.66	6.10	771	6.64	134.9	21.4		
750	3.5	11.76	6.12	771	6.66	136.7	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-CDH015

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 3.809 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 / J. Tomlinson	Flow Cell: Y / N Pump Depth: 5.5 m	Ref.datum: .....
Date: 17/4/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 5.82 m
Round April 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	Logic Check: ..... Stick Up: ..... m Bore Diam.: 50 mm Well Cap Secure? Yes

Time (24hr)	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*	-		
1225	1.0	4.01	0.26	279.0	5.50	202.5	21.8		Colourless, slightly opaque
1230	2.0	4.06	0.22	254.1	5.34	211.7	21.9		
1235	~~3.0~~	4.12	0.24	~~235.2~~	~~5.28~~	~~217.6~~	21.9		
1240	4.0	4.17	0.29	230.8	5.31	220.7	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_CPH017

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Pen	SWL: 2.928 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 / J. Tomlinson	Flow Cell: Y / N — Pump Depth: 4.5 m	Ref.datum:..... — Well Cap Secure? Y/N
Date: 17/4/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 4.94 m
Round April 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (1044)	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*	-		
1049	1.0	3.09	0.82	187.0	6.13	143.6	22.2		Clear and colourless, no odour Sheen
1053	2.0	3.27	2.70	157.1	6.00	148.0	22.3		
1057	3.0	3.41	3.57	153.0	5.92	153.2	22.3		
1101	4.0	3.57	3.80	153.0	5.95	159.1	22.4		
1105	5.0	3.72	3.41	146.2	5.88	169.8	22.4		

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: CSM_BH02

Job Information
Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / J. Tomlinson
Date: 16/4/19
Round April 2019

Sampling Information
Purge Method: Geocentral
Sample Method: Geocentral
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 25# m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information
SWL: 13.573 m Logic Check: .....
Screen: From:.....to..... m Stick Up: ..... m
NAPL Check:..... Bore Diam.: 50 mm
Ref.datum: ..... Well Cap Secure? Yes
Bore Depth: 28.18 m

Time (1100hrs)	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*	-		
1111	1.0	13.78	5.81	396.7	6.32	69.2	21.2		Red, turbid - flakes of solid things in water
1115	2.0	14.01	~~5.17~~	394.5	6.25	~~69.3~~	21.2		
1119	3.0	14.47	9.45	~~394.4~~	6.56	63.2	21.1		
1123	4.0	14.78	10.45	392.1	~~6.54~~	~~57.2~~	21.1		Purge method is creating Air pockets in the tubing effecting the DO measurements.
1127	5.0	15.30	10.69	~~376.1~~	(6.57)	57.2	21.1		
KUBN	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

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: GW_DH04

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Geocontrol	SWL: 18.396 m — Logic Check: /
Project: Central Station Main Works	Sample Method: Micropurge	Screen: From:..... to..... m — Stick Up: ..... m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check:..... — Bore Diam.: 50 mm
Sampler: T. Nham / J. Tomlinson	Flow Cell: Y / N — Pump Depth: 26 m	Ref.datum: ..... — Well Cap Secure? Yes
Date: 16/4/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 35.05 m
Round April 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (1249)	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*	-		
1223	1.0		9.91	435.6	6.56	-3.1	21.6		problem with purge method + DO
1227	2.0	18.56	10.03	~~444.6~~	6.50	-8.3	21.4		pale brown / turbid
1231	3.0	18.59	9.47	436.9	~~6.50~~	~~-13.3~~	21.6		
1235	4.0	18.59	9.77	~~436.0~~	6.48	-14.5	21.5		mild organic odour.

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: CSM_BH05

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Geo contal	SWL: 19.346 m — Logic Check: /
Project: Central Station Main Works	Sample Method: Geo contal	Screen: From: / to: m — Stick Up: m
Proj. No.: 21-27234	WQ Meter Type: YSI	NAPL Check: / — Bore Diam.: 50 mm
Sampler: T. Nham / J. Tomlinson	Flow Cell: Y / N — Pump Depth: 27 m	Ref.datum: — Well Cap Secure? Y
Date: 17/4/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 33.48 m
Round April 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (909)	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*	-		
942	0.5	19.38	5.89	886	6.75	80.8	22.1		Brown, turbid, no odour and flow
947	1.0	19.40	0.79	882	6.68	6.6	21.4		
951	1.5	19.40	0.46	(878)	~~6.69~~	-9.4	21.1		
955	2.0	19.40	0.38	877	(6.69)	-13.4	21.2		
~~959~~ 1003	2.5	19.40	0.35	879	6.69	~~-18.3~~	21.2		
1003	3.0	19.40	(0.37)	880	6.69	(-21.7)	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: CSM_BH06

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Geocentric	SWL: 20.377 m
Project: Central Station Main Works	Sample Method: "	Logic Check: ✓
Proj. No.: 21-27234	WQ Meter Type: YSI	Screen: From: ✓ to ✓ m
Sampler: T. Nham / J. Tomlinson	Flow Cell: Y / N	Pump Depth: 27 m
Date: 18/4/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Stick Up: ✓ m
Round April 2019		NAPL Check: ✓
		Bore Diam.: 50 mm
		Ref.datum: ✓
		Well Cap Secure? Yes
		Bore Depth: 35.44 m

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

Time (824)	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*	-		
851	1.0	20.40	2.69	966	6.46	76.7	23.8		pale brown, turbid
855	2.0	20.40	3.92	~~968~~	~~6.45~~	84.2	23.7		
859	3.0	20.40	4.11	961	6.46	88.2	23.6		
903	4.0	20.40	~~3.85~~	949	~~6.49~~	91.3	23.7		

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: CSM_BH08

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Geocontrol	SWL: 13.25 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 / J. Tomlinson	Flow Cell: Y / N — Pump Depth: 25 m	Ref.datum: ..... — Well Cap Secure? Yes
Date: 18/4/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 35.11 m
Round April 2019	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*	-		
620	1.0	13.26	3.16	537	6.34	3.07	21.2		opaque, slightly turbid
625	2.0	13.26	2.90	~~534~~	~~6.31~~	~~10.4~~	21.2		
630	3.0	13.26	2.84	528	6.33	8.4	21.3		
635	4.0	13.26	2.69	~~528~~	~~6.33~~	~~8.4~~	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

QC02

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: CSM_BH095

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 4.073 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 / J. Tomlinson	Flow Cell: Y / N Pump Depth: 6.5 m	Stick Up: m
Date: 17/4/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	NAPL Check: /
Round April 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	Bore Diam.: 50 mm
		Ref.datum:
		Well Cap Secure? Yes
		Bore Depth: 6.59 m

Time (826)	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*	-		
829	0.5	4.19	0.82	1000	5.87	172.9	20.5		Light Pale brown, slightly turbid, no odour or sheen
832	1.0	4.17	0.32	991	5.78	162.8	20.5		
835	1.5	4.25	0.28	983	5.74	149.5	20.6		
838	2.0	4.35	0.37	977	5.73	136.2	20.6		
841	2.5	4.45	0.18	959	5.72	120.1	20.8		
844	3.0	4.51	0.17	954	5.72	116.1	20.6		
847	3.5	4.56	0.17	947	5.72	112.7	20.6		Clear, slightly pale brown in colour.

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 QC01

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: CSM_DH10S

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peripump	SWL: 4.010 m
Project: Central Station Main Works	Sample Method: low-flow	Logic Check:
Proj. No.: 21-27234	WQ Meter Type: YSI	Screen: From: ..... to ..... m
Sampler: T. Nham / J. Tomlinson	Flow Cell: Y / N	Pump Depth: 9.3 m
Date: 16/4/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Stick Up: ..... m
Round April 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	NAPL Check: ..... Bore Diam.: 50 mm
		Ref.datum: ..... Well Cap Secure? Yes
		Bore Depth: 9.89 m

Time (1307)	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*	-		
1311	1.0	4.24	0.43	321.7	5.20	182.4	22.2		~~Clear and colourless~~
1315	2.0	4.32	0.37	~~316.8~~	5.14	200.6	22.1		pale brown, slightly turbid.
1319	3.0	4.40	0.29	317.4	~~5.13~~	214.6	22.1		
1324	4.0	4.48	0.28	~~316.4~~	5.14	221.6	22.1		
1329	5.0	4.55	~~0.25~~	313.2	~~5.13~~	224.2	22.0		
1332	6.0	4.62	0.26	311.6	5.15	227.6	22.0		

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

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: CSM – BH02

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Geocontrol	SWL: 16.070 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 / ~~J. Tomlinson~~ T. Frederick	Flow Cell: Y / N — Pump Depth: 22 m	Ref.datum: — Well Cap Secure? Y
Date: 14/5/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 28.14 m
Round May 2019	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*	-		
8:48	1.0	16.47	0.83	669	6.85	20.4	21.1		light brown, cloudy, no odour, no sheen
8:54	2.0	16.73	0.35	686	6.91	-38.2	20.9		light brown, turbid, no odour, no sheen
8:59	3.0	17.05	0.32	682	6.91	-50.2	20.9		" "
9:05	4.0	17.37	0.26	678	6.91	-56.7	20.9		" "
9:10	5.0	17.69	0.24	675	6.91	-61.1	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

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: CSM_DH04

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Geocontrol	SWL: 18.502 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 / ~~J. Tomlinson~~ T. Frederik	Flow Cell: Y / N — Pump Depth: 25 m	Ref.datum: ..... — Well Cap Secure? Y
Date: 17/5/19	WLevel Meter Type: IP — Dip / Fox / Int.Fce / Gge	Bore Depth: 35.20 m
Round May 2019	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*	-		
11:27	1.0	18.65	2.81	420.4	5.94	65.3	21.3		light brown, ~~cloudy~~ turbid, no odour, no sheen.
11:33	2.0	18.59	2.20	429.5	6.00	49.8	21.2		" "
11:39	3.0	18.63	2.06	431.8	5.93	51.2	21.2		" "
11:44	4.0	18.63	1.82	433.2	5.92	49.3	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

Takes 10 - 15 min to get water of sampling

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: CSM-BH05

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Geocontrol	SWL: 19.359 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 / ~~J. Tomlinson~~ T. Frederick	Flow Cell: Y / N — Pump Depth: 25 m	Ref.datum:..... — Well Cap Secure? Yes
Date: 13/5/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 39.43 m
Round May 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (am)	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*	-		~15min to get water
9:19	1.0	19.36	0.59	977	6.56	13.7	19.8		brown, turbid, no odour, no sheen, slow discharge
9:25	2.0	19.36	0.41	976	6.57	4.0	19.9		light greasy, cloudy, no odour, no sheen
9:33	3.0	19.35	0.32	977	6.57	-2.1	19.9		" "
9:37	4.0	19.36	0.31	980	6.57	-3.9	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: ESM_BH06

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Geocontrol	SWL: 20.395 m — Logic Check: ✓
Project: Central Station Main Works	Sample Method: Geocontrol	Screen: From: ..... to ..... m — Stick Up: ..... m
Proj. No.: 21-27234 T. Frederick	WQ Meter Type: YSI	NAPL Check: ✓ — Bore Diam.: 50 mm
Sampler: T. Nham / ~~J. Tomlinson~~	Flow Cell: Y / N — Pump Depth: 25 m	Ref.datum: ✓ — Well Cap Secure? Yes
Date: 14/5/19	WLevel Meter Type: ~~IP~~ Dip / Fox / Int.Fce / Gge	Bore Depth: 35.93 m
Round May 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (am)	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*	-		
6:58	1.0	20.44	0.79	992	6.36	29.4	21.5		no colour, cloudy, no odour, no sheen.
7:02	2.0	20.44	0.59	990	6.33	20.6	21.5		" "
7:07	3.0	20.44	0.51	991	6.33	15.3	21.4		" "
7:13	4.0	20.44	0.48	989	6.33	12.3	21.3		" "
7:18	5.0	20.44	0.53	986	6.33	11.4	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

QC02 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: CSM_BH08

Job Information

Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234 T. Frederik
Sampler: T. Nham / ~~J. Tomlinson~~
Date: 15/5/19
Round May 2019

Sampling Information

Purge Method: Geocontrol
Sample Method: Geocontrol
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 20 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL: 13.295 m Logic Check: ✓
Screen: From: ..... to ..... m Stick Up: ..... m
NAPL Check: ✓ Bore Diam.: 50 mm
Ref.datum: ..... Well Cap Secure? Yes
Bore Depth: 35.55 m

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*	-		
6.01	1.0	13.31	1.20	535	6.67	-17.5	20.5		clear, no colour, no odour, no sheen
6.04	2.0	13.31	0.93	534	6.53	-16.2	20.7		" "
6.08	3.0	13.29	0.59	536	6.42	-17.9	20.8		" "
6.12	4.0	13.30	0.57	538	6.39	-19.6	20.8		" "
6.15	5.0	13.31	0.74	540	6.38	-18.7	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	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: CSM_BH095

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 4.250 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 / ~~J. Tomlinson~~ T. Frederick	Flow Cell: Y / N — Pump Depth: 6.5 m	Ref.datum:..... — Well Cap Secure? Y
Date: 13/5/19	WLevel Meter Type: IP — Dip / Fox / Int.Fce / Gge	Bore Depth: 6.59 m
Round May 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*	-		
7.54	1.0	4.50	0.31	778	6.18	34.2	19.7		dark grey, turbid, no odour, no sheen.
7.58	2.0	4.58	0.22	776	6.03	33.8	19.8		clear, no colour, no odour, no sheen.
8:03	3.0	4.71	1.03	764	5.94	33.9	19.9		" "
8:07	4.0	4.74	0.76	745	5.91	33.4	19.9		" "
8:11	5.0	4.83	0.71	710	5.89	35.0	19.9		" "
8:16	6.0	4.89	0.71	670	5.89	34.6	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

QC01 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: CSM_DH105

Job Information

Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234 T. Frederick
Sampler: T. Nham / ~~J. Tomlinson~~
Date: 13/5/19
Round May 2019

Sampling Information

Purge Method: Peri
Sample Method: Peri
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 9.7 m
WLevel Meter Type: ID Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL: 4.349 m Logic Check: /
Screen: From: ..... to ..... m Stick Up: ..... m
NAPL Check: / Bore Diam.: 50 mm
Ref.datum: ..... Well Cap Secure? .....
Bore Depth: 9.87 m

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*	-		
10:28	1.0	4.76	0.24	272.2	5.11	162.3	21.5		clear, no colour, no odour, no sheen
10:34	2.0	4.84	0.15	270.1	5.00	181.8	21.4		" "
10:38	3.0	4.90	0.13	269.8	5.00	191.7	21.5		" "
10:42	4.0	4.94	0.12	269.7	4.99	198.9	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_BH047

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 5.198 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 / ~~J. Tomlinson~~ T. Frederik	Flow Cell: Y / N — Pump Depth: 6.8 m	Ref.datum: — Well Cap Secure? Y
Date: 14/5/19	WLevel Meter Type: ~~E~~ IP — Dip / Fox / Int.Fce / Gge	Bore Depth: 6.96 m
Round May 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*	-		
10:43	1.0	5.65	0.62	463.5	7.45	98.8	20.5		light grey, cloudy, no odour, no sheen
10:48	2.0	5.92	0.54	448.2	7.62	93.7	20.5		clear, no colour, no odour, no sheen
10:51	3.0	6.12	0.99	441.5	7.68	91.8	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

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: Pri	SWL: 6.246 m — Logic Check: .....
Project: Central Station Main Works	Sample Method: Pri	Screen: From:..... to..... m — Stick Up: ..... m
Proj. No.: 21-27234 T. Frederik	WQ Meter Type: YSI	NAPL Check:..... — Bore Diam.: 50 mm
Sampler: T. Nham / ~~J. Tomlinson~~	Flow Cell: Y / N — Pump Depth: 7.5 m	Ref.datum: ..... — Well Cap Secure? Y
Date: 14/5/19	WLevel Meter Type: Dip — Dip / Fox / Int.Fce / Gge	Bore Depth: 7.90 m
Round May 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*	-		
10:03	1.0	6.70	1.12	392.4	7.82	76.7	20.6		clear, no colour, no odour, no sheen.
10:06	2.0	6.83	2.22	367.5	7.28	80.0	20.6		" "
10:09	3.0	7.04	2.63	363.4	6.98	84.9	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	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	SWL: 4.204 m — Logic Check: ✓
Project: Central Station Main Works	Sample Method: Peri	Screen: From: ..... to ..... m — Stick Up: ..... m
Proj. No.: 21-27234 T. Frederick	WQ Meter Type: YSI	NAPL Check: ✓ — Bore Diam.: 50 mm
Sampler: T. Nham / ~~J. Tomlinson~~	Flow Cell: Y / N — Pump Depth: 5.8 m	Ref.datum: ..... — Well Cap Secure? Ya
Date: 15/5/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.00 m
Round May 2019	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*	-		
11:01	1.0	4.55	4.15	425.8	6.73	152.5	21.2		clear, no colour, no odour, no sheen
11:04	2.0	4.69	4.01	425.6	6.77	150.8	21.2		" "
11:08	3.0	4.95	4.03	422.2	6.79	149.5	21.3		" "
11:12	4.0	5.22	3.72	423.5	6.80	149.0	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

Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / ~~J. Tomlinson~~ T. Fosbrook
Date: 15/5/2019
Round May 2019

Sampling Information

Purge Method: Geocentral
Sample Method: Geocentral
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 14 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL: 10.840 m Logic Check: \
Screen: From: ..... to ..... m Stick Up: ..... m
NAPL Check: ..... Bore Diam.: 50 mm
Ref.datum: ..... Well Cap Secure? Y
Bore Depth: 14.50 m

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*	-		
8:29	1.0	11.13	6.59	789	6.58	44.9	21.0		clear, no colour, no odour, no sheen
8:33	2.0	11.42	3.43	791	6.58	57.5	21.1		" "
8:38	3.0	11.62	3.49	792	6.59	68.8	21.1		" "
8:42	4.0	11.82	3.44	793	6.59	74.9	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_SBH015

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 3.850 m Logic Check: .....
Project: Central Station Main Works	Sample Method: Peri	Screen: From:.....to..... m Stick Up: ..... m
Proj. No.: 21-27234 T. Frederick	WQ Meter Type: YSI	NAPL Check:..... Bore Diam.: 50 mm
Sampler: T. Nham / ~~J. Tomlinson~~	Flow Cell: Y / N Pump Depth: 5.8 m	Ref.datum: ..... Well Cap Secure?.....
Date: 15/5/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 5.91 m
Round May 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*	-		
11:43	1.0	4.08	~~0.50~~	269.1	5.69	148.0	21.4		clear, no colour, no odour, no sheen
11:46	2.0	4.14	0.25	232.5	5.27	165.6	21.5		" "
11:50	3.0	4.19	0.19	225.6	5.17	174.1	21.5		" "
11:54	4.0	4.25	0.22	221.5	5.11	183.7	21.6		" "
11:58	5.0	4.31	0.30	222.3	5.15	189.3	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_CDH01B7

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 2.905 m — Logic Check: .....
Project: Central Station Main Works	Sample Method: Peri	Screen: From:..... to..... m — Stick Up: ..... m
Proj. No.: 21-27234 T. Frederick	WQ Meter Type: YSI	NAPL Check:..... — Bore Diam.: 50 mm
Sampler: T. Nham / J. Tomlinson	Flow Cell: Y / N — Pump Depth: 4.8 m	Ref.datum: ..... — Well Cap Secure? Yes
Date: 15/5/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 4.96 m
Round May 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*	-		
10:16	1.0	3.18	1.79	174.2	6.25	129.6	21.7		clear, no colour, no odour, no sheen.
10:19	2.0	3.29	2.72	158.9	5.98	135.3	21.8		" "
10:23	3.0	3.54	3.73	150.3	5.81	144.2	21.9		" "
10:27	4.0	3.67	3.50	149.2	5.72	149.3	21.9		" "
10:30	5.0	3.76	2.76	153.2	5.75	152.3	21.9		" "

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

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Purging and Sampling Record

Bore ID: GASW_BH7

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Peri	SWL: 4.24 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: 6.0 m	Ref.datum: ..... — Well Cap Secure? NO
Date: 5/6/2019	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.17 m
Round June 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*	-		
9:16	1	4.55	0.67	465.7	6.72	93.4	20.3		cloudy/clear, ~~no colour~~ tinted red/brown, no odour, no sheen
9:19	2	4.68	1.03	457.7	6.09	92.1	20.4		clear, red/brown tint, no odour, no sheen
9:23	3	4.83	1.43	466.4	5.96	95.4	20.3		" "
9:27	4	4.90	1.56	461.7	5.86	100.0	20.4		" "
9:31	5	5.01	1.40	458.3	5.77	104.5	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

QC01 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: GASW_BH10

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: ~~Peri~~ Geocentral	SWL: 12.375 m — Logic Check: —
Project: Central Station Main Works	Sample Method: ~~Peri~~ Geocentral	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: 20 m	Ref.datum: — — Well Cap Secure? Y
Date: 5/6/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 25.0 m
Round June 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*	-		slight rotten egg smell
12:24	1	12.99	8.45	866	7.60	-85.4	13.9		~~clear~~/cloudy, no colour, ~~no odour~~, no sheen
12:28	2	13.29	1.35	911	7.40	-137.1	17.6		" slight rotten egg smell "
12:31	3	13.94	0.65	913	7.37	-159.9	17.9		clear, no colour, ~~no odour~~, no sheen
12:35	4	13.75	0.43	915	7.36	-174.4	18.0		" " "
12:39	5	14.14	0.34	914	7.39	-191.7	18.2		" " "

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

Pump issues!

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: GASW-BH11

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 4.58 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: 8.5 m	Ref.datum: - — Well Cap Secure? Y
Date: 5/6/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 9.01 m
Round June 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*	-		
10:40	1	5.19	0.31	473.5	6.20	14.2	19.3		red brown, turbid, high sediment, no sheen
10:44	2	5.22	0.56	441.3	6.18	1.6	19.6		clear, no colour, slight hydrocarbon & hydrocarbon smell
10:48	3	5.30	1.19	321.7	5.84	81.2	19.8		" " odour,
10:52	4	5.32	1.08	316.8	5.74	97.7	20.1		" " " "
10:56	5	5:33	0.90	332.7	5.82	84.7	20.3		red brown turbid, high sediment, slight hydrocarbon odour. no sheen

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

QC02 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: CSM-BH02

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Geocontrol	SWL: 19.422 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: 25 m	Ref.datum: — — Well Cap Secure? Y
Date: 6/6/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 34.38 m
Round June 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*	-		
10:31	1	19.92	0.95	895	6.99	-40.7	20.2		light brown, cloudy, no odour, no sheen
10:34	2	20.10	0.77	889	6.97	-42.4	20.2		" "
10:40	3	20.28	0.80	878	6.97	-40.7	20.1		" "
10:44	4	20.40	0.93	862	6.98	-40.5	20.1		" "
10:50	5	20.51	1.22	849	6.98	-51.3	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: CSM_BH04

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Geocontrol	SWL: 18.952 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: 29.0 m	Ref.datum: - — Well Cap Secure? T
Date: 11/6/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 34.99 m
Round June 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*	-		grey
10:03	1	18.57	0.97	431.6	6.02	25.7	20.9		~~white~~, cloudy, no odour, no sheen.
10:08	2	18.58	0.38	433.3	5.99	19.1	20.9		" "
10:13	3	18.57	0.32	435.1	5.98	17.9	20.9		" "
10:18	4	18.57	0.32	436.3	5.97	17.3	20.9		" "
10:23	5	18.57	0.33	434.3	5.97	17.2	20.9		" "

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

GHD MANAGEMENT ENGINEERING ENVIRONMENT

Purging and Sampling Record

Bore ID: CSM_BH05

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: ~~Bailer~~ Geocontrol	SWL: 19.375 m Logic Check: -
Project: Central Station Main Works	Sample Method: ~~Bailer~~ 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: ..... m	Ref.datum: - Well Cap Secure? Y
Date: 11/6/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 33.96 m
Round June 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*	-		
12:21	1	19:37	0.78	1098	6.41	11.4	19.6		clear, ~~no colour~~ grey/red tint, no odour, no sheen
12:26	2	19:36	0.66	1095	6.47	10.7	19.6		"
12:30	3	19:38	0.67	1093	6.48	13.2	19.6		"
12:34	4	19:38	0.62	1094	6.49	14.8	19.6		"
12:38	5	19:36	0.58	1093	6.50	16.6	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

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: CSM_BH06

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Geocontrol	SWL: 20.402 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: 25 m	Ref.datum: - Well Cap Secure? Y
Date: 6/6/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 35.42 m
Round June 2019	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*	-		
8:35	1	20.48	0.51	980	6.48	-37.3	21.4		cloudy, light brown, no odour, no sheen.
8:38	2	20.44	0.37	986	6.49	-51.6	21.4		"
8:42	3	20.45	0.29	990	6.50	-61.7	21.6		"
8:46	4	20.43	0.24	991	6.50	-69.2	21.5		"
8:50	5	20.44	0.24	995	6.49	-74.7	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

QC04 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: CSM_BH08

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Geocentral	SWL: 13.762 m — Logic Check: ✓
Project: Central Station Main Works	Sample Method: 11	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: 25 m	Ref.datum: ..... — Well Cap Secure? Yes
Date: 6/6/2019	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 35.14 m
Round June 2019	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*	-		
6:44	1	13.31	0.40	530	7.05	-22.4	20.3		slightly cloudy, no odour, no odour, no sheen.
6:50	2	13.31	0.28	532	6.81	-27.4	20.5		" "
6:54	3	13.31	0.27	533	6.70	-30.7	20.4		" "
6:58	4	13.33	0.22	534	6.64	-31.1	20.5		" "
7:01	5	13.32	0.22	534	6.61	-30.9	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

QC03 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: CSM_BH095

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Pri	SWL: 4.165 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: 6.5 m	Ref.datum: - — Well Cap Secure? Y
Date: 11/6/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.59 m
Round June 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*	-		
11:25	1	4.35	0.82	736	5.81	199.6	20.4		clear, no colour, no odour, no sheen
11:30	2	4.49	0.68	737	5.77	185.6	20.3		" "
11:34	3	4.60	0.48	734	5.79	128.9	20.3		" "
11:39	4	4.67	0.42	728	5.82	108.6	20.2		" "
11:43	5	4.75	0.50	712	5.82	98.7	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

Purging and Sampling Record

Bore ID: CSM_BH105

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 4.130 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? Y
Date: 11/6/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 9.89 m
Round June 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*	-		
9:05	1	4.48	0.23	261.6	6.26	245.8	20.7		cloudy, no colour, no odour, no sheen
9:09	2	4.57	0.21	261.6	5.93	252.7	20.7		" "
9:13	3	4.59	0.22	258.2	5.73	257.5	20.4		clear, no colour, no odour, no sheen.
9:17	4	4.61	0.21	257.1	5.58	260.9	20.4		" "
9:21	5	4.64	0.21	258.1	5.49	261.0	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

Top of casing is 95mm bgl

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: Pei	SWL: 4.594 m — Logic Check: —
Project: Central Station Main Works	Sample Method: Pei	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: 7/6/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.95 m
Round June 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (.....)	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*	-		
10:04	1	5.12	0.39	428.2	7.86	98.6	19.9		brown, cloudy, no odour, no sheen
10:10	2	5.54	0.56	420.5	7.87	93.6	19.8		" "
10:14	3	5.89	0.64	418.8	7.86	92.8	20.0		" "
10:18	4	6.17	1.56	409.8	7.83	93.8	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: Pei	SWL: 6.305 m — Logic Check: -
Project: Central Station Main Works	Sample Method: Pei	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: 7/6/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 7.90 m
Round June 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*	-		
9:24	1	6.74	2.45	420.9	8.25	71.0	19.5		cloudy, no colour, no odour, no sheen
9:27	2	6.94	2.70	404.1	8.03	77.5	19.4		clear, no colour, no odour, no sheen
9:32	3	7.17	3.43	382.5	7.59	90.8	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

Sampled as ~0.7m water left

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	SWL: 3.000 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: 5.9 m	Ref.datum: - Well Cap Secure? Y
Date: 7/6/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.00 m
Round June 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*	-		
11:45	1	3.25	5.59	411.5	6.78	150.8	20.4		brown, turbid, no odour, no sheen
11:50	2	3.34	5.40	413.5	6.84	151.7	20.6		clear, no colour, no odour, no sheen
11:54	3	3.46	5.53	414.6	6.86	152.4	20.6		" "
11:58	4	3.62	5.26	416.1	6.87	153.9	20.6		" "
12:02	5	3.74	5.09	417.1	6.87	154.0	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

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: ~~Peri~~ Geocentric	SWL: 10.782 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: 14 m	Ref.datum: - — Well Cap Secure? Y
Date: 7/6/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 14.505 m
Round June 2019	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*	-		
3:09	1	11.04	3.38	753	6.45	110.2	20.7		Clear
3:16	2	11.29	4.00	730	6.53	138.1	20.7		"
3:23	3	11.56	4.31	725	6.58	134.5	20.8		"
3:27	4	11.71	4.30	723	6.60	135.6	20.8		"
3:31	5	11.88	4.37	726	6.60	137.5	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

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-BHCBH015

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Pei	SWL: 3.958 m Logic Check: -
Project: Central Station Main Works	Sample Method: Pei	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: 7/6/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 5.91 m
Round June 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*	-		
12:36	1	4.12	0.31	237.7	5.85	185.1	20.7		clear, no colour, no odour, no sheen
12:40	2	4.20	0.34	213.7	5.52	241.1	20.8		" "
12.45	3	4.26	0.51	211.3	5.37	264.7	20.8		" "
12.49	4	4.30	0.55	212.9	5.35	264.1	20.8		" "
12:53	5	4.33	0.59	212.7	5.32	269.9	20.9		" "

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_CBH017

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Pri	SWL: 3.193 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: 7/6/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 4.94 m
Round June 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*	-		
10.57	1	3.44	0.44	232.1	6.82	72.6	20.6		cloudy, no odour, no colour, no sheen
11.01	2	3.62	1.88	203.6	6.46	135.6	20.9		clear, no colour, no odour, no sheen
11.04	3	3.74	3.10	171.7	6.30	181.9	20.8		" "
11.08	4	3.89	2.20	158.2	6.16	184.2	20.9		" "
11.11	5	4.03	1.68	159.8	6.09	189.4	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

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: CSM-BH02

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Geocontrol	SWL: 22.662 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: 26 m	Ref.datum: - — Well Cap Secure? Y
Date: 30/7/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 34.23 m
Round July 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*	-		
1.29	1	23.13	7.28	1004	7.15	115.2	20.8		light brown, turbid, no odour, no sheen, high sediment
1.28	2	23.32	0.24	1002	7.30	104.8	19.4		"
1.33	3	23.52	5.30	1006	7.25	107.4	19.5		"
1.38	4	23.70	0.67	1007	7.32	103.4	19.4		"
1.43	5	23.89	4.51	1010	7.27	106.3	19.5		"
1.48	6	23.99	4.85	1013	7.26	106.3	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

High Sediment load

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: CSM-BH09

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Geocontrol	SWL: 22.258 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: 28 m	Ref.datum: — Well Cap Secure?
Date: 30/7/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 35.26 m
Round July 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*	-		
11:15	1	22.33	4.08	450.6	6.22	35.7	19.9		light brown, very cloudy, no odour, no sheen, high silt
11:20	2	22.37	2.89	457.4	6.04	52.4	20.3		"
11:24	3	22.38	3.43	457.9	6.07	51.7	20.4		"
11:28	4	22.40	3.23	460.3	6.04	54.8	20.4		"
11:33	5	22.39	3.61	463.8	6.07	53.5	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

More silty than previous rounds

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: CSM_RH05

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Geocontrol	SWL: 22.630 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: 28 m	Ref.datum: – — Well Cap Secure? Y
Date: 29/7/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 33.97 m
Round July 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*	-		
10:09	1	22.65	0.73	875	6.28	38.2	19.1		light brown tint, cloudy, no odour, no sheen
10:13	2	22.71	0.46	873	6.30	34.1	19.1		" "
10:17	3	22.71	0.38	876	6.31	31.1	19.2		no odour, cloudy, no odour, no sheen
10:20	4	22.68	0.36	877	6.32	29.1	19.2		" "
10:23	5	22.66	0.38	877	6.33	27.8	19.2		" "

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: CSM_BH06

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Geocontrol	SWL: 23.705 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: 27 m	Ref.datum: — — Well Cap Secure? T
Date: 30/7/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 35.43 m
Round July 2019	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*	-		~~very~~ light brown
8:46	1	23.67	0.64	975	6.44	52.5	20.7		~~moderate~~ slightly cloudy, no odour, no sheen
8:52	2	23.73	2.65	984	6.36	55.4	20.8		" "
9.01	3	23.71	3.44	986	6.33	56.4	21.0		" "
9.07	4	23.74	2.67	996	6.36	49.0	21.4		" "
9.11	5	23.74	2.61	996	6.37	44.7	21.5		" "
9.14	6	23.70	2.49	996	6.37	40.6	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

More silty than previous months? Odd logger trend from early July.

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: CSM_BH08

Job Information

Client: Laing O'Rouke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / T. Frederick
Date: 30/7/19
Round July 2019

Sampling Information

Purge Method: Geocontrol
Sample Method: Geocontrol
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 24 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL: 16.205 m Logic Check: ——
Screen: From:.....to..... m Stick Up: —— m
NAPL Check:..... Bore Diam.: 50 mm
Ref.datum: ..... Well Cap Secure? T
Bore Depth: 35.05 m

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*	-		
7:22	1	16.22	0.81	643	6.91	-70.0	20.3		clear, no colour, no odour, no sheen
7:26	2	16.23	1.22	650	6.75	-76.0	20.3		" "
7:30	3	16.23	0.24	649	6.68	-73.5	20.3		" "
7:33	4	16.22	0.54	650	6.67	-73.4	20.4		" "
7:38	5	16.21	0.01	648	6.69	-74.6	20.5		" "
7:41	6	16.22	0.50	647	6.64	-72.2	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

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: CSM_BH096

Job Information

Client: Laing O'Rouke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / T. Frederick
Date: 29/7/19
Round July 2019

Sampling Information

Purge Method: Peri
Sample Method: Peri
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 9.5 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL: 4.173 m Logic Check: -
Screen: From: - to: - m Stick Up: - m
NAPL Check: - Bore Diam.: 50 mm
Ref.datum: Well Cap Secure? Y
Bore Depth: 9.59 m

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*	-		
9:06	1	4.43	56.3	657	5.89	58.6	19.2		clear, no colour, no odour, no sheen
9:10	2	4.56	1.35	606	5.66	93.7	19.1		" "
9:15	3	4.65	0.50	614	5.66	90.4	19.2		" "
9:18	4	4.74	0.23	633	5.71	81.6	19.2		" "
9:23	5	4.85	0.67	675	5.75	59.7	19.2		" "
9:27	6	4.92	0.64	676	5.81	52.5	19.3		" "
9:30	7	4.96	0.61	672	5.81	50.1	19.2		" "

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

QC01 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: CSM-BH105

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Peri	SWL: 4.421 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: 30/7/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 9.835 m
Round July 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (mg/L)	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*	-		
9:59	1	4.80	0.68	262.9	5.61	200.6	20.4		clear, no colour, no odour, no sheen.
10:03	2	4.90	0.59	257.1	5.58	213.3	20.4		" "
10:07	3	4.95	0.99	256.0	5.55	217.0	20.4		" "
10:10	4	5.00	0.66	265.2	5.56	220.4	20.6		" "
10:15	5	5.05	0.47	265.6	5.56	222.8	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

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: GASW_BH7

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 4.165 m — Logic Check: -
Project: Central Station Main Works	Sample Method: Peri	Screen: From: - to: - m — Stick Up: 1.6.1 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? NO CAP!
Date: 29/7/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.18 m
Round July 2019	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*	-		
11.38	1	4.46	0.70	437.6	4.33	235.5	20.8		very red brown, turbid, slight hydrocarbon odour, no sheen
11.43	2	4.60	0.57	437.5	4.20	270.0	20.7		clear, no colour, very slight hydrocarbon odour, no sheen
11:48	3	4.75	0.58	437.1	4.21	273.7	20.5		" "
11.51	4	4.92	0.64	440.1	4.27	274.4	20.6		" "
11:54	5	5.06	0.70	441.5	4.32	271.2	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	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: GASW_BH10

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method: Geocontrol	SWL: 19.966 m — Logic Check: -
Project: Central Station Main Works	Sample Method: Geocontrol	Screen: From: - to: - m — Stick Up: 0.3 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: 25 m	Ref.datum: - — Well Cap Secure? Y
Date: 29/7/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 25.37 m
Round July 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*	-		
12:25	1	20.56	0.48	1105	6.57	-154.6	20.5		DARK grey turbid, rotten egg smell, slight sheen
12:28	2	20.70	0.32	1094	6.61	-170.3	20.4		"
12:31	3	20.90	0.24	1088	6.64	-179.1	20.3		"
12:34	4	21.28	0.27	1084	6.66	-189.3	20.3		"
12:37	5	21.53	0.27	1080	6.67	-196.3	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: GASW-RH11

Job Information

Client: Laing O'Rouke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / T. Frederick
Date: 29/7/19
Round July 2019

Sampling Information

Purge Method: Peri
Sample Method: Peri
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 8.8 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL: 5.265 m Logic Check: –
Screen: From: – to – m Stick Up: 0.75 m
NAPL Check: – Bore Diam.: 50 mm
Ref.datum: – Well Cap Secure? Y
Bore Depth: 9.01 m

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*	-		slight
11:03	1	5.75	0.23	583	6.37	-53.0	21.0		rotten egg smell, clear, no colour, no odour
11:07	2	5.85	0.72	360.3	5.66	82.2	21.1		"
11:10	3	5.85	0.80	337.8	5.62	92.7	21.2		"
11:13	4	5.93	0.51	354.8	5.76	60.0	21.4		"
11:16	5	5.92	0.63	365.0	5.87	52.5	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_BH067

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method:	SWL: 5.010 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: 6.9 m	Ref.datum: - — Well Cap Secure? Y
Date: 31/7/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.95 m
Round July 2019	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*	-		
9:23	1	5.61	0.70	438.5	7.78	99.7	19.5		light brown, turbid, no odour, no sheen.
9:28	2	5.92	0.84	435.1	7.77	97.7	19.5		clear, no colour, no odour, no sheen.
9:33	3	6.20	2.18	388.5	7.67	98.8	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

Sampled before stabilising due to insufficient water.

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

Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / T. Frederick
Date: 31/7/19
Round July 2019

Sampling Information

Purge Method: Peri
Sample Method: Peri
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 7.8 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL: 6.283 m Logic Check: -
Screen: From: - to: - m Stick Up: - m
NAPL Check: - Bore Diam.: 50 mm
Ref.datum: - Well Cap Secure? Y
Bore Depth: 7.92 m

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*	-		
4.42	1	6.5	3.57	391.3	8.63	52.7	18.5		cloudy, no colour, no odour, no sheen.
4.48	2	6.79	3.30	385.6	7.62	84.0	19.4		clear, no colour, no odour, no sheen.
8.52	3	7.08	3.27	369.2	7.29	98.5	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

Sampled before stabilising due to insufficient water

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_DH055

Job Information

Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / T. Frederick
Date: 31/7/19
Round July 2019

Sampling Information

Purge Method: Peri
Sample Method: Peri
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 5.9 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL: 3.631 m Logic Check: —
Screen: From: — to: — m Stick Up: — m
NAPL Check: — Bore Diam.: 50 mm
Ref.datum: — Well Cap Secure? Y
Bore Depth: 6.00 m

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*	-		
11:29	1	4.21	5.46	393.5	7.00	160.7	19.9		clear, no colour, no odour, no sheen.
1.30	2	4.49	4.74	394.9	7.03	159.0	19.8		" "
11.34	3	4.80	5.69	396.1	7.01	158.8	19.8		" "
11.39	4	~~5.15~~	5.56	396.7	7.02	158.7	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

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: CRT_RH063

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Geocontrol	SWL: 10.785 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:.....m	Ref.datum: ..... — Well Cap Secure?.....
Date: 29/7/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 14.50 m
Round July 2019	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*	-		
3:48	1	11.00	6.23	751	6.78	-12.0	20.8		cloudy, no colour, no odour, no sheen
3:52	2	11.19	6.11	753	6.68	23.9	21.0		clear, no colour, no odour, no sheen
3:55	3	11.26	6.17	746	6.67	37.8	20.6		" "
3:59	4	11:50	6.65	757	6.65	46.9	21.1		" "
4:03	5	11.72	6.11	758	6.65	53.6	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-CBHU15

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 4.013 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:.....m	Ref.datum: ..... — Well Cap Secure?.....Y.....
Date: 31/7/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 5.915 m
Round July 2019	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*	-		
12:07	1	4.11	1.19	244.3	6.01	120.1	19.7		cloudy, no colour, no odour, no sheen
12:12	2	4.22	2.00	215.7	5.38	230.4	20.2		clear, no colour, no odour, no sheen.
12:17	3	4.30	1.85	211.6	5.35	243.5	20.2		" "
12:22	4	4.40	1.76	209.5	5.33	250.7	20.2		" "
12:27	5	4.45	1.74	207.8	5.30	255.6	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

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-CBH017

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Pri	SWL: 3.214 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: 31/7/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 4.94 m
Round July 2019	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*	-		
10:35	1	3.47	2.35	213.0	6.61	151.4	20.0		clear, no colour, no odour, no sheen
10:39	2	3.65	2.31	213.3	6.48	158.6	20.2		" "
10:42	3	3.85	2.15	200.0	6.37	167.3	20.1		" "
10:45	4	4.05	1.41	192.9	6.22	178.5	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

Well within excavation zone on platform (work site)

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: CSM_BH02

Job Information
- Client: Laing O'Rouke / Sydney Metro
- Project: Central Station Main Works
- Proj. No.: 21-27234
- Sampler: T. Nham / J. Tomlinson
- Date: 29/8/19
- Round August 2019

Sampling Information
- Purge Method: micropurge
- Sample Method: Lowflow
- WQ Meter Type: YSI
- Flow Cell: Y / N Pump Depth:.....m
- WLevel Meter Type: Dip / Fox / Int.Fce / Gge

Bore Information
- SWL: 21.49 m Logic Check: ...
- Screen: From:.....to..... m Stick Up: ..... m
- NAPL Check:..... Bore Diam.: 50 mm
- Ref.datum: ..... Well Cap Secure?...Y...
- Bore Depth: 34.05 m

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	-		
11:25	0.5	22.01	1.26	1011	6.60	37.6	18.6		brown, silty, no sheen/odour
11:29	1.5	22.14	0.34	1018	6.66	36.3	19.0		"
11:32	2.25	22.26	0.18	1024	6.70	38.2	19.1		"
11:35	3	22.32	0.12	1021	6.72	39.5	19.2		"
11:38	4	22.34	0.08	1023	6.75	40.7	19.3		"

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: ESM - BH04

Job Information
- Client: Laing O'Rourke / Sydney Metro
- Project: Central Station Main Works
- Proj. No.: 21-27234
- Sampler: T. Nham / J. Tomlinson
- Date: 29/8/19
- Round August 2019

Sampling Information
- Purge Method: QED Nitrapure
- Sample Method: QED Nitrapure
- WQ Meter Type: YSI
- Flow Cell: Y / N Pump Depth: 25 m
- WLevel Meter Type: Dip / Fox / Int.Fce / Gge
- Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information
- SWL: 22.17 m Logic Check: /
- Screen: From: / to: / m Stick Up: / m
- NAPL Check: / Bore Diam.: 50 mm
- Ref.datum: / Well Cap Secure? Y.e.s
- Bore Depth: 34.28 m

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (mg/L)	Elec.Cond (Cuscm)	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	-		
8:22	0.5	22.32	1.59	397.4	5.58	76.2	19.3		orange / turbid, nr odour/sheen
8:25	1	22.32	1.29	394.3	5.50	76.8	19.4		"
8:28	1.3	22.32	1.19	400.9	5.45	77.1	19.5		"
8:31	1.6	22.32	1.27	404.8	5.40	77.5	19.5		"
8:34	2.0	22.32	1.36	410.8	5.37	77.1	19.6		"
8:37	2.3	22.33	1.52	417.1	5.35	76.8	19.6		"
8:40	2.7	22.33	1.58	421.4	5.34	75.9	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

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: CSM_BH05

Job Information	Sampling Information	Bore Information
Client: Laing O'Rouke / Sydney Metro	Purge Method:	SWL: ..... 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 / J. Tomlinson	Flow Cell: Y / N Pump Depth:.....m	Ref.datum: ..... Well Cap Secure?...Y.....
Date: 28/8/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 20.72 m
Round August 2019	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*	-		
		well	destroyed,		TBM				

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: CSM_DH06

Job Information

Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / J. Tomlinson
Date: 28/8/19
Round August 2019

Sampling Information

Purge Method: Geocastor
Sample Method:
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 28.0 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL: 22.030 m Logic Check: /
Screen: From: ..... to ..... m Stick Up: ..... m
NAPL Check: / Bore Diam.: 50 mm
Ref.datum: ..... Well Cap Secure? Yes
Bore Depth: 35.46 m

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (mg/L)	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	-		
14:41	0.5	22.03	6.29	1036	6.63	60.5	22.0		clear, no odour/sheen.
14:45	1	22.06	6.35	1035	6.77	62.8	21.9		" "
14:48	1.5	22.06	6.32	1034	6.80	64.0	21.9		" "
14:51	2.0	22.06	6.00	1035	6.81	65.4	22.0		" "
14:54	2.5	22.06	5.90	1036	6.81	66.9	21.9		" "

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: CSM_BH08

Job Information
- Client: Laing O'Rouke / Sydney Metro
- Project: Central Station Main Works
- Proj. No.: 21-27234
- Sampler: T. Nham / J. Tomlinson
- Date: 29/8/19
- Round August 2019

Sampling Information
- Purge Method: QED Micropurge
- Sample Method: "
- WQ Meter Type: YSI
- Flow Cell: Y / N Pump Depth: 20 m
- WLevel Meter Type: Dip / Fox / Int.Fce / Gge
- Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information
- SWL: 14.83 m Logic Check: /
- Screen: From: ..... to ..... m Stick Up: / m
- NAPL Check: / Bore Diam.: 50 mm
- Ref.datum: / Well Cap Secure? Yes
- Bore Depth: 35.05 m

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	-		
7:00	1	15.85	0.29	648	6.72	56.1	19.4		Clear, no sediment, no odour/sheen
7:03	2	15.84	0.16	653	6.61	54.6	19.9		"
7:08	3	15.84	0.09	659	6.55	53.7	20.0		"
7:12	4	15.84	0.14	658	6.50	53.4	20.0		"
7:15	5	15.84	0.18	660	6.49	52.4	20.1		"
7:18	5.75	15.84	0.23	661	6.48	52.7	20.1		"
7:21	6.5	15.84	0.28	660	6.47	51.9	20.1		"
7:24	7	15.84	0.34	661	6.46	-7.8	20.2		"
7:27	7.5	15.84	0.36	662	6.45	-9.5	20.2		"
7:30	8	15.84	0.37	663	6.45	-10.8	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: CSM-BH095

Job Information
- Client: Laing O'Rourke / Sydney Metro
- Project: Central Station Main Works
- Proj. No.: 21-27234
- Sampler: T. Nham / J. Tomlinson
- Date: 29/8/19
- Round August 2019

Sampling Information
- Purge Method: Bail
- Sample Method: Bail
- 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: 4.425 m Logic Check: /
- Screen: From: ..... to ..... m Stick Up: ..... m
- NAPL Check: / Bore Diam.: 50 mm
- Ref.datum: / Well Cap Secure? Yes
- Bore Depth: 6.590 m

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*	-		
7:55	0.5	4.645	1.04	560	6.21	59.3	18.7		clear/brown, no sheen, no odour
8:00	1.5	4.775	1.29	567	5.79	57.0	18.8		"
8:05	2.5	4.86	0.75	571	5.71	52.1	18.5		"
8:10	3.5	4.92	0.67	573	5.70	49.4	18.4		"
8:15	4.5	4.98	0.70	575	5.73	47.1	18.6		"
8:19	5.5	5.00	0.77	565	5.73	44.7	18.4		"

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

DUPLICATE = QC01

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: CSM-DH105

Job Information

Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / J. Tomlinson
Date: 29/8/19
Round August 2019

Sampling Information

Purge Method: Peri
Sample Method: Peri
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 9.5 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL: 4.630 m Logic Check: .....
Screen: From: ..... to ..... m Stick Up: ..... m
NAPL Check: ..... Bore Diam.: 50 mm
Ref.datum: ..... Well Cap Secure? Yes
Bore Depth: 9.815 m

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*	-		
8:56	1	4.98	0.82	249.0	5.02	92.1	20.1		Bore cloudy.
9:02	2	4.99	1.17	238.3	4.98	84.9	19.6		"
9:08	3	5.04	1.14	238.6	4.97	81.2	19.6		"
9:12	4	5.06	0.96	239.2	5.00	78.3	19.6		"
9:16	5	5.07	0.95	239.3	5.01	77.3	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

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_BH47

Job Information

Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / J. Tomlinson
Date: 30/8/19
Round August 2019

Sampling Information

Purge Method: Peri
Sample Method: low-flow
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: 4.650 m Logic Check: .....
Screen: From:.....to..... m Stick Up: ..... m
NAPL Check:..... Bore Diam.: 50 mm
Ref.datum: ..... Well Cap Secure?.....
Bore Depth: 6.965 m

Time (1010)	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	-		
1013	0.5		1.47	414.7	8.18	44.7	18.4		Slightly turbid. No odour or sheen.
1016	1.0		1.16	416.5	8.07	44.1	18.7		Clear and colourless
1019	1.5		1.05	416.5	8.02	43.4	18.7		
1022	2.0		1.06	416.9	7.99	42.5	18.7		
1025	2.5		1.08	416.7	7.97	42.0	18.8		
1028	3.0		1.09	416.1	7.95	42.2	18.8	5.71	

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
- Client: Laing O'Rourke / Sydney Metro
- Project: Central Station Main Works
- Proj. No.: 21-27234
- Sampler: T. Nham / J. Tomlinson
- Date: 30/8/19
- Round August 2019

Sampling Information
- Purge Method: Pen
- Sample Method: Pen
- WQ Meter Type: YSI
- Flow Cell: Y / N Pump Depth: 7.5 m
- WLevel Meter Type: Dip / Fox / Int.Fce / Gge
- Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information
- SWL: 6.714 m Logic Check: /
- Screen: From: ..... to ..... m Stick Up: ..... m
- NAPL Check: / Bore Diam.: 50 mm
- Ref.datum: ..... Well Cap Secure? Yes
- Bore Depth: 7.50 m

Time (9m)	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*	-		
922	0.5	6.61	4.24	362.8	7.41	60.0	19.5		Brown and turbid, no odour or sheen
925	1.0	6.68	4.38	363.5	7.360	58.1	19.(		
928	1.5	6.71	4.52	364.1	7.82	57.2	18.2		slightly turbid, colourless.
931	2.0	6.77	4.83	365.7	6.99	56.2	17.6		
934	2.5	6.92	3.86	401.7	9.17	45.2	18.7		
937	3.0	7.09	3.88	410.8	9.06	45.6	18.7		
940	3.5	7.14	3.86	406.7	9.01	50.4	18.7		

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_DH059

Job Information

Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / J. Tomlinson
Date: 30/8/19
Round August 2019

Sampling Information

Purge Method: Pen
Sample Method: Pen
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 5.8 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL: 3.007 m Logic Check: /
Screen: From: / to: / m Stick Up: / m
NAPL Check: / Bore Diam.: 50 mm
Ref.datum: / Well Cap Secure? Yes
Bore Depth: 6.00 m

Time (1136)	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*	-		
1139	0.5	3.12	6.96	342.7	6.90	47.6	18.5		Clear, colourless. no odour or sheen
1142	1.0	3.23	6.90	347.0	6.90	46.6	18.6		
1145	1.5		6.90	348.4	6.91	45.6	18.5		
1148	2.0	3.45	6.98	348.3	6.91	45.3	18.5		
1151	2.5		6.94	348.7	6.91	45.1	18.5		
1154	3.0		6.90	349.0	6.91	44.7	18.5		

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: 3RT_BH063

Job Information
- Client: Laing O'Rourke / Sydney Metro
- Project: Central Station Main Works
- Proj. No.: 21-27234
- Sampler: T. Nham / J. Tomlinson
- Date: 29/8/19
- Round August 2019

Sampling Information
- Purge Method: Geocentral
- Sample Method: Geocentral
- WQ Meter Type: YSI
- Flow Cell: Y / N Pump Depth: 14.5 m
- WLevel Meter Type: Dip / Fox / Int.Fce / Gge
- Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information
- SWL: 10.81 m Logic Check: /
- Screen: From: ..... to ..... m Stick Up: ..... m
- NAPL Check: / Bore Diam.: 50 mm
- Ref.datum: / Well Cap Secure? Yes
- Bore Depth: 14.80 m

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*	-		
3:42	0.5	11.10	6.27	793	6.65	63.9	21.2		Brown cloudy
3:48	1.5	11.35	6.77	790	6.67	65.3	21.2		"
3:53	2.5	11.65	6.92	790	6.68	65.3	21.3		"
3:59	3.5	12.00	6.61	785	6.71	64.7	21.3		"
4:05	4.5	12.23	6.85	785	6.74	64.4	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: SKT_CBH015

Job Information
- Client: Laing O'Rourke / Sydney Metro
- Project: Central Station Main Works
- Proj. No.: 21-27234
- Sampler: T. Nham / J. Tomlinson
- Date: 30/8/19
- Round August 2019

Sampling Information
- Purge Method: Peristaltic Pump
- Sample Method: Low-flow
- WQ Meter Type: YSI
- Flow Cell: Y / N Pump Depth: 5.5 m
- WLevel Meter Type: Dip / Fox / Int.Fce / Gge

Bore Information
- SWL: 4.040 m Logic Check: .....
- Screen: From:.....to..... m Stick Up: ..... m
- NAPL Check:..... Bore Diam.: 50 mm
- Ref.datum: ..... Well Cap Secure?.....
- Bore Depth: 5.91 m

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

Time (1214...)	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*	-		
1217	0.5	4.19	1.07	~~688~~ 210.7	5.65	67.7	19.6		Clear and colourless. No odour or flow.
1220	1.0	4.28	0.90	211.0	5.43	~~67.9~~	19.7		
1223	1.5	4.36	1.32	209.9	5.30	66.1	19.6		
1226	2.0	4.42	1.09	~~2088~~	5.23	65.9	19.6		
1229	25[illegible]	4.46	1.07	207.0	5.22	65.4	19.6		
1232	3.0	4.49	1.03	206.1	5.19	65.1	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

QC02 Duplicate

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
Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / J. Tomlinson
Date: 30/8/19
Round August 2019

Sampling Information
Purge Method: Peristaltic pump
Sample Method: Low-flow
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 4.5 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information
SWL: 3.373 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 (1056)	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	-		
1059	0.5	3.49	2.84	230.9	7.17	53.9	19.2		Clear and colourless, no odour or sheen
1102	1.0	3.61	2.64	232.7	6.82	52.3	19.6		
1105	1.5	3.72	2.57	233.4	6.64	51.6	19.6		
1108	2.0	3.83	2.44	233.9	6.51	50.9	19.6		
1111	2.5	3.91	2.39	232.1	6.49	50.5	19.6		
1114	3.0	3.97	2.34	233.9	6.47	50.1	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

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: GASW_BH7

Job Information
- Client: Laing O'Rourke / Sydney Metro
- Project: Central Station Main Works
- Proj. No.: 21-27234
- Sampler: T. Nham / J. Tomlinson
- Date: 28/8/19
- Round August 2019

Sampling Information
- Purge Method: Peri
- Sample Method: Peri
- WQ Meter Type: YSI
- Flow Cell: Y / N Pump Depth: 6.0 m
- WLevel Meter Type: Dip / Fox / Int.Fce / Gge
- Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information
- SWL: 4.115 m Logic Check: /
- Screen: From: ..... to ..... m Stick Up: ..... m
- NAPL Check: / Bore Diam.: 50 mm
- Ref.datum: / Well Cap Secure? Y.S.
- Bore Depth: 6.210 m

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*	-		
12:10	1	4.68	0.36	433.5	4.14	93.0	20.0		GWBr, clear.
12:15	2	4.83	0.52	439.4	4.16	89.8	20.4		"
12:19	3	4.93	0.58	441.9	4.22	89.5	20.5		"
12:24	4	5.10	0.78	443.7	4.17	91.2	20.7		"
12:30	5	5.24	1.00	439.4	4.24	91.5	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: GASW_BH16

Job Information
- Client: Laing O'Rourke / Sydney Metro
- Project: Central Station Main Works
- Proj. No.: 21-27234
- Sampler: T. Nham / J. Tomlinson
- Date: 28/8/19
- Round August 2019

Sampling Information
- Purge Method: Geocentre
- Sample Method:
- WQ Meter Type: YSI
- Flow Cell: Y / N Pump Depth: 24.00 m
- WLevel Meter Type: Dip / Fox / Int.Fce / Gge
- Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information
- SWL: 20.625 m Logic Check: /
- Screen: From: ..... to ..... m Stick Up: ..... m
- NAPL Check: / Bore Diam.: 50 mm
- Ref.datum: / Well Cap Secure? Yes
- Bore Depth: 25.00 m

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (mg/L)	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	-		
10:32	0.5	21.01	7.26	1243	6.77	-23.5	21.4		clear, slightly turbid, no odour, no sheen
10:37	1	21.36	4.28	1280	6.74	-24.0	20.7		" "
10:41	1.5	21.96	3.96	1272	6.75	-21.9	20.9		" "
10:45	2	21.72	3.97	1263	6.65	-20.6	20.8		" "
10:49	2.5	22.06	4.31	1251	6.63	-21.9	20.8		
10:53	3	22.22	4.64	1239	6.74	-25.7	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

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: GASL-BH11

Job Information
- Client: Laing O'Rouke / Sydney Metro
- Project: Central Station Main Works
- Proj. No.: 21-27234
- Sampler: T. Nham / J. Tomlinson
- Date: 28/8/19
- Round August 2019

Sampling Information
- Purge Method: Per
- Sample Method: Per
- WQ Meter Type: YSI
- Flow Cell: Y / N Pump Depth: 8.5 m
- WLevel Meter Type: Dip / Fox / Int.Fce / Gge
- Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information
- SWL: 5.635 m Logic Check: /
- Screen: From: ..... to ..... m Stick Up: / m
- NAPL Check: / Bore Diam.: 50 mm
- Ref.datum: / Well Cap Secure? Yes
- Bore Depth: 9.01 m

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (mg/L)	Elec.Cond (Cus/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	-		
9:15	1	5.95	0.68	331.7	5.32	40.5	20.5		Brown cloudy.
9:20	2	6.05	0.56	306.0	5.40	37.7	20.5		"
9:25	3	6.05	0.67	309.6	5.26	35.6	20.6		"
9:30	4	6.08	0.82	318.3	5.35	32.2	20.6		"
9:35	5	6.115	0.92	307.2	5.33	31.6	20.7		"
9:41	6	6.16	1.00	314.0	5.51	33.2	20.6		"
9:46	7	6.17	1.06	316.3	5.60	35.8	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

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: CSM – BH02

Job Information
Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / T. Frederick
Date: 26/9/19
Round September 2019

Sampling Information
Purge Method: ~~Geotech~~ Micropurge
Sample Method: Micropurge
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 25 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information
SWL: 20.685 m Logic Check: –
Screen: From: – to: – m Stick Up: – m
NAPL Check: – Bore Diam.: 50 mm
Ref.datum: – Well Cap Secure? Y
Bore Depth: 33.67 m

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*	-		
9:57	1	20.93	0.00	975	6.82	-26.3	20.0		cloudy, light grey, no odour, no sheen
10:01	2	21.03	0.60	965	6.79	-37.8	19.9		"
10:04	3	21.12	0.40	958	6.79	-37.0	19.9		"
10:08	4	21.27	0.29	942	6.78	-37.1	19.9		"
10:12	5	21.35	0.26	935	6.77	-36.7	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 / Preservatives	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				

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: CSM – BH04

Job Information
- Client: Laing O'Rourke / Sydney Metro
- Project: Central Station Main Works
- Proj. No.: 21-27234
- Sampler: T. Nham / T. Frederick
- Date: 26/9/19
- Round September 2019

Sampling Information
- Purge Method: Micropurge
- Sample Method: "
- WQ Meter Type: YSI
- Flow Cell: Y / N — Pump Depth: 34 m
- WLevel Meter Type: Dip / Fox / Int.Fce / Gge
- Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information
- SWL: 22.165 m — Logic Check: –
- Screen: From: – to: – m — Stick Up: – m
- NAPL Check: – — Bore Diam.: 50 mm
- Ref.datum: – — Well Cap Secure? Y
- Bore Depth: 34.12 m

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	-		
11:19	1	22.36	0.57	419.5	6.16	65.0	21.3		slight sulphur odour, cloudy, brown, no odour, no sheen.
11:29	2	22.40	0.44	419.2	5.88	69.5	21.2		" "
11:28	3	22.41	0.34	421.8	5.85	67.1	21.2		" "
11:32	4	22.45	0.29	430.3	5.85	61.4	21.1		" "
11:36	5	22.56	0.21	562	6.00	-12	21.2		" "
11:40	6	22.49	0.13	646	6.55	-78.1	21.2		clear, brown tint, no slight sulfur odour, no sheen
11:49	7	22.46	0.09	677	6.78	-114.8	21.2		" "
11:48	8	22.45	0.06	693	6.92	-137.8	21.3		" "
11:52	9	22.48	0.00	720	7.33	-218.1	21.2		" "
11:56	10	21.48	0.00	723	7.54	-240.7	21.2		" "
12:00	11	21.48	0.00	724	7.57	-239.0	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 / Preservatives	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				

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: CSM – BH06

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Micropurge	SWL: 21.146 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: 23 m	Ref.datum: - Well Cap Secure? Y
Date: 26/9/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 35.38 m
Round September 2019	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*	-		
13.25	1	21.23	1.02	441.7	6.06	149.6	22.9		cloudy, light brown, no odour, no sheen
13:29	2	21.20	0.57	492.4	5.71	158.0	22.7		" "
13:33	3	21.23	0.43	587	5.69	142.1	22.8		" "
13:37	4	21.22	0.28	661	5.73	125.2	22.6		" "
13:41	5	21.24	0.34	680	5.73	119.8	22.6		" "

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: CSM_DH08

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Micropurge (QED)	SWL: 14.045 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: 22 m	Ref.datum: — Well Cap Secure? Yes
Date: 26/9/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 35.44 m
Round September 2019	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*	-		
7:28	1	14.05	0.39	547	6.78	-65.9	20.2		clear, no colour, no odour, no sheen
7:32	2	14.05	0.32	550	6.48	-54.3	20.3		" "
7:36	3	14.05	0.25	550	6.34	-46.5	20.4		" "
7:41	4	14.05	0.19	550	6.29	-43.0	20.4		" "
7:45	5	14.05	0.15	551	6.28	-41.9	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: CSM_BH095

Job Information

Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / T. Frederick
Date: 25/9/19
Round September 2019

Sampling Information

Purge Method: Pei
Sample Method: Pei
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: 4.030 m Logic Check: -
Screen: From: - to: - m Stick Up: - m
NAPL Check: - Bore Diam.: 50 mm
Ref.datum: - Well Cap Secure? Y
Bore Depth: 6.62 m

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (.....)	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*	-		
13:33	1	4.12	1.73	650	6.36	174.0	19.3		clear, no colour, no odour, no sheen
13:36	2	4.20	1.70	647	5.75	185.9	19.2		" "
13:40	3	4.30	1.73	639	5.61	187.2	19.1		" "
13:44	4	4.42	1.57	642	5.52	170.9	19.2		" "
13:	5	4.45	1.12	651	5.56	129.5	19.3		" "

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

DUP = QC01

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: CSM_BH105

Job Information

Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / T. Frederick
Date: 25/9/19
Round September 2019

Sampling Information

Purge Method: Peri
Sample Method: Peri
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 9.5 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL: 4.265 m Logic Check: -
Screen: From: - to - m Stick Up: - m
NAPL Check: - Bore Diam.: 50 mm
Ref.datum: - Well Cap Secure? Y
Bore Depth: 9.78 m

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*	-		
14:32	1	4.56	0.30	239.5	5.32	171.5	20.6		clear, no colour, no odour, no sheen
14:36	2	4.62	0.23	235.7	5.21	186.3	20.6		" "
14:40	3	4.71	0.17	235.8	5.16	235.7	20.6		" "
14:44	4	4.75	0.13	235.5	5.14	235.6	20.6		" "
14:48	5	4.76	0.13	235.8	5.13	235.9	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

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_RH047

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 4.150 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: 27/9/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.94 m
Round September 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (mg/L)	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	-		
9:47	1	4.62	1.54	415.1	7.44	111.4	19.7		slightly cloudy, light brown, no odour, no sheen
9:52	2	4.87	1.47	414.7	7.44	109.6	19.6		" "
9:56	3	5.27	1.56	414.9	7.45	108.0	19.6		clear, no colour, no odour, no sheen
10:01	4	5.70	1.64	414.8	7.45	106.3	19.6		" "
10:06	5	5.90	1.54	415.1	7.45	105.2	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

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: [redacted]SRT_BH052

Job Information

Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / T. Frederick
Date: 27/9/19
Round September 2019

Sampling Information

Purge Method: Peri
Sample Method: Peri
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 7.8 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL: 6.105 m Logic Check: -
Screen: From:.....to..... m Stick Up: - m
NAPL Check:..... Bore Diam.: 50 mm
Ref.datum: ..... Well Cap Secure? Y
Bore Depth: 7.93 m

Time (.....)	Volume (L)	SWL mbtoc	Dis.Oxygen (~~ppm~~ %)	Elec.Cond (~~uS/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*	-		
8.58	1	6.59	6.08	266.3	6.73	112.1	19.8		clear, no colour, no odour, no sheen
9.06	2	6.77	5.07	292.3	6.41	131.5	19.8		"
9.14	3	6.88	5.06	383.3	6.43	133.1	19.5		"
9.19	4	7.14	4.53	416.1	7.39	114.8	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 / Preservatives	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				

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-RH05.9

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Pei	SWL: 3.090 m Logic Check: -
Project: Central Station Main Works	Sample Method: Pei	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: 27/9/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.06 m
Round September 2019	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*	-		
11:54	1	3.40	7.51	361.9	6.71	145.1	19.6		clear, no colour, no odour, no sheen
11:58	2	3.61	4.64	362.0	6.70	143.8	19.6		"
12:03	3	3.87	4.67	361.0	6.75	140.3	19.5		"
12:07	4	4.17	4.90	363.1	6.76	138.1	19.5		"
12:11	5	4.42	4.77	362.7	6.78	136.8	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

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: SRTSRH015

Job Information

Client: Laing O'Rourke / Sydney Metro
Project: Central Station Main Works
Proj. No.: 21-27234
Sampler: T. Nham / T. Frederick
Date: 27/9/19
Round September 2019

Sampling Information

Purge Method: Peri
Sample Method: Peri
WQ Meter Type: YSI
Flow Cell: Y / N Pump Depth: 5.5 m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL: 3.850 m Logic Check: -
Screen: From: - to: - m Stick Up: - m
NAPL Check: - Bore Diam.: 50 mm
Ref.datum: - Well Cap Secure? Y
Bore Depth: 5.95 m

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*	-		
12:43	1	4.03	0.75	202.9	5.58	181.5	20.6		slighty cloudy, light brown, no odour, no sheen
12:48	2	4.11	0.55	198.0	5.16	198.0	20.6		clear, no odour, no odour, no sheen
12:53	3	4:14	0.79	198.9	5.10	217.9	20.5		"
12:57	4	4.22	0.95	200.7	5.10	218.8	20.6		"
13:01	5	4.25	0.93	201.1	5.10	219.8	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

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-CBH017

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 3.175 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: 4-8 m	Ref.datum: — Well Cap Secure? Y
Date: 27/9/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 4.97 m
Round September 2019	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*	-		
10:51	1	3.48	2.43	220.1	6.22	149.7	20.3		Clear;
10:54	2	3.62	2.46	217.5	6.15	152.9	20.3		"
10:59	3	3.78	2.17	204.8	6.04	158.5	20.3		"
11:04	4	3.94	1.50	209.4	5.96	162.0	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

DUP = QC02

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: GASW_BH7

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 3.664 m Logic Check: -
Project: Central Station Main Works	Sample Method: Peri	Screen: From: - to: - m Stick Up: 1.02 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: 6.0 m	Ref.datum: - Well Cap Secure? Y
Date: 25/9/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 6.19 m
Round September 2019	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*	-		
10:37	1	4.01	0.23	448.9	3.77	258.1	20.1		clear, no colour,
10:42	2	4.22	0.02	456.2	3.80	284.5	20.0		"
10:46	3	4.41	0.79	465.8	3.84	297.3	20.1		"
10:50	4	4.64	0.49	461.7	3.92	293.6	20.0		"
10:55	5	4.83	0.36	454.5	3.95	292.9	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

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: GASW – BH10

Job Information
- Client: Laing O'Rourke / Sydney Metro
- Project: Central Station Main Works
- Proj. No.: 21-27234
- Sampler: T. Nham / T. Frederick
- Date: 26/9/19
- Round September 2019

Sampling Information
- Purge Method: ~~Geopunch~~ Micropurge
- 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: 19.705 m
- Logic Check: –
- Screen: From: – to: – m
- Stick Up: 0.63 m
- NAPL Check: –
- Bore Diam.: 50 mm
- Ref.datum: –
- Well Cap Secure? Y
- Bore Depth: 25.11 m

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*	-		
8:49	1	20.05	0.40	1240	6.43	-85.2	20.1		cloudy, light grey, slight rotten egg smell, no sheen.
8:54	2	20.32	0.40	1236	6.43	-96.5	20.1		"
9:00	3	20.74	0.25	1236	6.43	-104.0	20.3		"
9:05	4	21.17	0.18	1238	6.45	-106.1	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 / Preservatives	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				

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: GASW_BH11

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Pri	SWL: 5.027 m — Logic Check: -
Project: Central Station Main Works	Sample Method: Pri	Screen: From: - to: - m — Stick Up: 0.77 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: 8.5 m	Ref.datum: - — Well Cap Secure? Y
Date: 25/9/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 9.03 m
Round September 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (~~field~~)	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*	-		
9:48	1	5.45	0.17	273.4	5.57	103.8	20.9		cloudy, red tint, no odour, no sheen
9:54	2	5.53	0.11	274.2	5.39	117.6	20.9		" "
10:00	3	6.03	0.06	280.1	5.35	120.9	20.9		" "
10:05	4	6.04	0.06	282.5	5.35	118.6	21.0		" "
10:09	5	6.06	0.07	287.9	5.38	115.1	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: GASV – BH23

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 2.490 m Logic Check: –
Project: Central Station Main Works	Sample Method: Peri	Screen: From:.....to..... m Stick Up: 0.90 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: 3.5 m	Ref.datum: ..... Well Cap Secure? Y
Date: 25/9/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: 3.93 m
Round September 2019	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*	-		
11:21	1	2.45	0	884	6.43	-150.1	19.7		cloudy, dark grey, naphalene/tar odour, no sheen
11:26	2	2.46	0	913	6.68	-153.0	19.7		" "
11:30	3	2.45	0	912	6.65	-119.4	19.3		slightly cloudy, light grey, naphalene/tar odour, no sheen
11:34	4	2.45	0	913	6.59	-99.2	19.3		" "
11:38	5	2.45	0	918	6.59	-92.9	19.2		" "

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: GASW_BH28A

Job Information	Sampling Information	Bore Information
Client: Laing O'Rourke / Sydney Metro	Purge Method: Peri	SWL: 2.560 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: 4.2 m	Stick Up: 1.39 m
Date: 25/7/19	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	NAPL Check: –
Round September 2019	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	Ref.datum: –
		Bore Depth: 4.40 m
		Bore Diam.: 50 mm
		Well Cap Secure? Y

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*	-		
12:44	1	2.59	0.08	427.2	8.92	-195.5	18.4		slightly cloudy, light grey, naphthalene/tar odour, no sheen
12:48	2	2.59	0.00	451.4	9.09	-229.7	18.2		clear, no colour, " " " "
12:52	3	2.60	0.00	598	8.88	-229.2	18.1		" "
12:56	4	2.60	0.00	629	8.64	-270.0	18.1		" "
13:00	5	2.60	0.00	630	8.57	-287.7	18.1		" "
13:04	6	2.61	0.00	626	8.57	-306.9	18.1		" "

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

Appendix G
Laboratory analytical reports

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS — Page 1 of 2

Company Name : GHD Pty Ltd, Sydney	**Contact Name :** Terry Nham / James Tomlinson	**Purchase Order :**	**COC Number :**
Office Address :	**Project Manager :** Henry Luo	**PROJECT Number :** 21-27234	**Eurofins | mgt quote ID :** GHD Rates 2019
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results :** terry.nham@ghd.com james.tomlinson@ghd.com henry.luo@ghd.com	**PROJECT Name :** Central	**Data output format:** ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number: S132

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	16/4/19	Water	X	X	X	X	X	X				X	X
2	SRT_BH052	↓	↓	X	X	X	X	X	X				X	X
3	CSM_BH02			X	X	X	X	X	X				X	X
4	CSM_BH04			X	X	X	X	X	X				X	X
5	CSM_BH05	↓	↓	X	X	X	X	X	X				X	X
6	SRT_BH059	17/4/19		X	X	X	X	X	X				X	X
7	SRT_CBH015			X	X	X	X	X	X				X	X
8	SRT_CBH017			X	X	X	X	X	X				X	X
9	CSM_BH05			X	X	X	X	X	X				X	X
10	CSM_BH09S			X	X	X	X	X	X				X	X
11	QC01			Please send to ALS with attached COC										
12	RB01	↓									X			
13	Trip Blank	16/4/19								X				
14	Trip Spike	↓								X				
15	SRT_BH063	18/4/19		X	X	X	X	X	X				X	X
16	CSM_BH06	↓	↓	X	X	X	X	X	X				X	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	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		4		2	2			
10	1		4		2	2			
11	1		4		2	2			
12			1						
13					2				
14					2				
15	1		4		2	2			
16	1		4		2	2			

Relinquished By: Terry Nham - GHD
Date & Time : 18/4/2019
Signature:

Laboratory Staff
Received By: Grace Tuckwell
Date & Time : 18/4 11:53am
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: 14.30
Report number: 651825

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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 2019
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results :** terry.nham@ghd.com james.tomlinson@ghd.com henry.luo@ghd.com	**PROJECT Name :** Central	**Data output format:** ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number: S132

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	CSM_BH08	18/4/19	Water	X	X	X	X	X	X				X	X
2	QC02	↓	↓									X		
3														
4														
5														
6														
7														
8														
9														
10														
11														
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									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									

Relinquished By: Terry Nham - GHD
Date & Time : 18/4/2019
Signature:

Laboratory Staff
Received By: Grace Tucknell
Date & Time : 18/4 11:53am
Signature: Tucknell

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: 14.30
Report number: 651825

Alena Bounkeua

From: Henry Luo <Henry.Luo@ghd.com>
Sent: Monday, 29 April 2019 11:28 AM
To: Alena Bounkeua
Cc: James Tomlinson; Terry Nham; Nibha Vaidya
Subject: RE: 651825 - Central

EXTERNAL EMAIL*

Hi Alena

Thanks very much for your email.

Please proceed silica gel clean up only for samples with TRH detection.

Kind regards

Henry

Henry Luo
Senior Environmental Engineer - Contamination Assessment & Remediation

GHD
Proudly employee owned
T: + 61 2 9239 7044 | F: + 61 2 9239 7199 | V: 217044 | M: 0414 090 002 | E: henry.luo@ghd.com
Level 15 133 Castlereagh St Sydney NSW 2000 Australia | http://www.ghd.com/

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From: AlenaBounkeua@eurofins.com <AlenaBounkeua@eurofins.com>
Sent: Monday, 29 April 2019 11:24 AM
To: Terry Nham <Terry.Nham@ghd.com>
Cc: James Tomlinson <James.Tomlinson@ghd.com>; Henry Luo <Henry.Luo@ghd.com>; Nibha Vaidya <NibhaVaidya@eurofins.com>
Subject: 651825 - Central

Hi Terry,

In regards to this project attached, some samples are non-detect for TRH.

Would you like to proceed with silica gel cleanup for all samples? Or only the samples with detect values?

Thanks,

Kind Regards,

Alena Bounkeua
Eurofins|mgt
Phone: (02) 9900 8414
Email: AlenaBounkeua@eurofins.com

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Sample Receipt Advice

Company name:	**GHD Pty Ltd NSW**
Contact name:	Henry Luo
Project name:	CENTRAL
Project ID:	21-27234
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Apr 18, 2019 11:53 AM
Eurofins | mgt reference:	**651825**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 14.3 degrees Celsius.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☑ Sample containers for volatile analysis received with zero headspace.

☑ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

Sample QC01 sent to ALS.

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8415 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Henry Luo - henry.luo@ghd.com.



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 **651825-W**
Project name CENTRAL
Project ID 21-27234
Received Date Apr 18, 2019

Client Sample ID			**SRT_BH047**	**SRT_BH052**	**CSM_BH02**	**CSM_BH04**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Ap30154**	**S19-Ap30155**	**S19-Ap30156**	**S19-Ap30157**
Date Sampled			**Apr 16, 2019**	**Apr 16, 2019**	**Apr 16, 2019**	**Apr 16, 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	0.03	< 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	0.2	< 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	0.2	< 0.1	< 0.1
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	0.03	< 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	0.2	< 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	0.2	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	0.007	0.014	< 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	%	85	85	84	80
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	CSM_BH02	CSM_BH04
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ap30154	S19-Ap30155	S19-Ap30156	S19-Ap30157
Date Sampled			Apr 16, 2019	Apr 16, 2019	Apr 16, 2019	Apr 16, 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	%	71	66	64	75
p-Terphenyl-d14 (surr.)	1	%	81	75	84	87
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	%	72	105	143	72
Tetrachloro-m-xylene (surr.)	1	%	72	88	144	63
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	CSM_BH02	CSM_BH04
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Ap30154**	**S19-Ap30155**	**S19-Ap30156**	**S19-Ap30157**
Date Sampled			**Apr 16, 2019**	**Apr 16, 2019**	**Apr 16, 2019**	**Apr 16, 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	%	83	76	84	89
Polychlorinated Biphenyls						
Aroclor-1016	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1242	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1248	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1254	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1260	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	72	105	143	72
Tetrachloro-m-xylene (surr.)	1	%	72	88	144	63
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	CSM_BH02	CSM_BH04
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ap30154	S19-Ap30155	S19-Ap30156	S19-Ap30157
Date Sampled			Apr 16, 2019	Apr 16, 2019	Apr 16, 2019	Apr 16, 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	%	33	24	29	36
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)	0.4	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	< 0.01	0.05	< 0.01
Chloride	1	mg/L	33	45	51	65
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.5	mg/L	< 0.5	< 0.5	1.6	11
Nitrate (as N)	0.02	mg/L	25	5.2	< 0.02	< 0.02
Sulphate (as SO4)	5	mg/L	15	21	44	55
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	62	140	110	91
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	90	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	24	3.0	9.2	5.8
Magnesium	0.5	mg/L	9.6	1.5	11	11
Potassium	0.5	mg/L	1.8	1.7	2.7	2.5
Sodium	0.5	mg/L	37	130	61	69
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.002	0.002	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.023	0.005	0.20	0.36
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.001	< 0.001	0.012	0.010
Zinc (filtered)	0.005	mg/L	0.013	< 0.005	0.006	< 0.005

Client Sample ID			CSM_BH105	SRT_BH059	SRT_CBH015	SRT_CBH017
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ap30158	S19-Ap30159	S19-Ap30160	S19-Ap30161
Date Sampled			Apr 16, 2019	Apr 17, 2019	Apr 17, 2019	Apr 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	84	85	83
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	%	66	72	73	74
p-Terphenyl-d14 (surr.)	1	%	83	95	90	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			CSM_BH105	SRT_BH059	SRT_CBH015	SRT_CBH017
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ap30158	S19-Ap30159	S19-Ap30160	S19-Ap30161
Date Sampled			Apr 16, 2019	Apr 17, 2019	Apr 17, 2019	Apr 17, 2019
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	%	142	92	78	83
Tetrachloro-m-xylene (surr.)	1	%	144	79	85	71
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			CSM_BH105	SRT_BH059	SRT_CBH015	SRT_CBH017
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ap30158	S19-Ap30159	S19-Ap30160	S19-Ap30161
Date Sampled			Apr 16, 2019	Apr 17, 2019	Apr 17, 2019	Apr 17, 2019
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	%	85	99	92	84
Polychlorinated Biphenyls						
Aroclor-1016	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1242	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1248	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1254	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1260	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	142	92	78	83
Tetrachloro-m-xylene (surr.)	1	%	144	79	85	71
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	%	31	31	31	41
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Chloride	1	mg/L	38	9.7	16	8.8
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.5	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
Nitrate (as N)	0.02	mg/L	1.6	2.5	3.5	3.1
Sulphate (as SO4)	5	mg/L	85	15	52	15

Client Sample ID			CSM_BH105	SRT_BH059	SRT_CBH015	SRT_CBH017
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ap30158	S19-Ap30159	S19-Ap30160	S19-Ap30161
Date Sampled			Apr 16, 2019	Apr 17, 2019	Apr 17, 2019	Apr 17, 2019
Test/Reference	LOR	Unit				
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	23	200	39	44
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	3.4	49	4.0	9.6
Magnesium	0.5	mg/L	5.5	6.0	5.8	4.9
Potassium	0.5	mg/L	3.1	5.8	3.9	3.2
Sodium	0.5	mg/L	49	8.2	30	9.2
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.002	0.001	0.001	0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.52	< 0.005	5.8	0.65
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.002	< 0.001	0.010	0.004
Zinc (filtered)	0.005	mg/L	0.006	< 0.005	0.024	0.008

Client Sample ID			CSM_BH05	CSM_BH095	RB01	TRIP BLANK
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ap30162	S19-Ap30163	S19-Ap30164	S19-Ap30165
Date Sampled			Apr 17, 2019	Apr 17, 2019	Apr 17, 2019	Apr 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	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	-	-
TRH >C16-C34	0.1	mg/L	0.9	< 0.1	-	-
TRH >C34-C40	0.1	mg/L	0.2	< 0.1	-	-
TRH >C10-C40 (total)*	0.1	mg/L	1.1	< 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	-	-
TRH C15-C28	0.1	mg/L	0.5	< 0.1	-	-
TRH C29-C36	0.1	mg/L	0.4	< 0.1	-	-
TRH C10-36 (Total)	0.1	mg/L	0.9	< 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	%	75	81	-	82

Client Sample ID			CSM_BH05	CSM_BH095	RB01	TRIP BLANK
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ap30162	S19-Ap30163	S19-Ap30164	S19-Ap30165
Date Sampled			Apr 17, 2019	Apr 17, 2019	Apr 17, 2019	Apr 17, 2019
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	%	66	95	-	-
p-Terphenyl-d14 (surr.)	1	%	77	116	-	-
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	%	67	134	-	-
Tetrachloro-m-xylene (surr.)	1	%	58	115	-	-

Client Sample ID			CSM_BH05	CSM_BH095	RB01	TRIP BLANK
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ap30162	S19-Ap30163	S19-Ap30164	S19-Ap30165
Date Sampled			Apr 17, 2019	Apr 17, 2019	Apr 17, 2019	Apr 17, 2019
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	%	74	105	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.005	mg/L	< 0.005	< 0.005	-	-
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	-	-
Aroclor-1232	0.005	mg/L	< 0.005	< 0.005	-	-
Aroclor-1242	0.005	mg/L	< 0.005	< 0.005	-	-
Aroclor-1248	0.005	mg/L	< 0.005	< 0.005	-	-
Aroclor-1254	0.005	mg/L	< 0.005	< 0.005	-	-
Aroclor-1260	0.005	mg/L	< 0.005	< 0.005	-	-
Total PCB*	0.001	mg/L	< 0.001	< 0.001	-	-
Dibutylchlorendate (surr.)	1	%	67	134	-	-
Tetrachloro-m-xylene (surr.)	1	%	58	115	-	-

Client Sample ID			CSM_BH05	CSM_BH095	RB01	TRIP BLANK
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Ap30162**	**S19-Ap30163**	**S19-Ap30164**	**S19-Ap30165**
Date Sampled			**Apr 17, 2019**	**Apr 17, 2019**	**Apr 17, 2019**	**Apr 17, 2019**
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	%	36	51	-	-
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)	0.4	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	0.20	-	-
Chloride	1	mg/L	130	79	-	-
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	-	-
Ferrous Iron - Fe2+	0.5	mg/L	1.1	9.4	-	-
Nitrate (as N)	0.02	mg/L	< 0.02	0.59	-	-
Sulphate (as SO4)	5	mg/L	78	270	-	-
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	230	38	-	-
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	-	-
Alkali Metals						
Calcium	0.5	mg/L	30	13	-	-
Magnesium	0.5	mg/L	23	11	-	-
Potassium	0.5	mg/L	6.0	7.1	-	-
Sodium	0.5	mg/L	140	120	-	-

Client Sample ID			CSM_BH05	CSM_BH095	RB01	TRIP BLANK
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ap30162	S19-Ap30163	S19-Ap30164	S19-Ap30165
Date Sampled			Apr 17, 2019	Apr 17, 2019	Apr 17, 2019	Apr 17, 2019
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	0.001	mg/L	-	-	< 0.001	-
Arsenic (filtered)	0.001	mg/L	0.002	< 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	< 0.001	< 0.001	-	-
Lead	0.001	mg/L	-	-	< 0.001	-
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	-	-
Manganese (filtered)	0.005	mg/L	0.36	0.83	-	-
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	0.011	0.009	-	-
Zinc	0.005	mg/L	-	-	< 0.005	-
Zinc (filtered)	0.005	mg/L	0.011	0.042	-	-

Client Sample ID			[R20]TRIP SPIKE	SRT_BH063	CSM_BH06	CSM_BH08
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ap30166	S19-Ap30167	S19-Ap30168	S19-Ap30169
Date Sampled			Apr 17, 2019	Apr 18, 2019	Apr 18, 2019	Apr 18, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	81	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	50	< 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	-	0.2	0.3	< 0.1
TRH >C34-C40	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	-	0.2	0.3	< 0.1
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	52	< 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	-	0.2	0.3	< 0.1
TRH C29-C36	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	-	0.2	0.3	< 0.1
BTEX						
Benzene	0.001	mg/L	81	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	66	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	71	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	69	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	79	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	73	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	105	82	81	76

Client Sample ID			[R20]TRIP SPIKE	SRT_BH063	CSM_BH06	CSM_BH08
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ap30166	S19-Ap30167	S19-Ap30168	S19-Ap30169
Date Sampled			Apr 17, 2019	Apr 18, 2019	Apr 18, 2019	Apr 18, 2019
Test/Reference	LOR	Unit				
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	%	-	76	71	82
p-Terphenyl-d14 (surr.)	1	%	-	91	81	98
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
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	%	-	76	56	104
Tetrachloro-m-xylene (surr.)	1	%	-	80	59	122

Client Sample ID			[R20]TRIP SPIKE	SRT_BH063	CSM_BH06	CSM_BH08
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ap30166	S19-Ap30167	S19-Ap30168	S19-Ap30169
Date Sampled			Apr 17, 2019	Apr 18, 2019	Apr 18, 2019	Apr 18, 2019
Test/Reference	LOR	Unit				
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
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	%	-	84	79	89
Polychlorinated Biphenyls						
Aroclor-1016	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Aroclor-1221	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Aroclor-1242	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Aroclor-1248	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Aroclor-1254	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Aroclor-1260	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Total PCB*	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	-	76	56	104
Tetrachloro-m-xylene (surr.)	1	%	-	80	59	122

Client Sample ID			R20TRIP SPIKE	SRT_BH063	CSM_BH06	CSM_BH08
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Ap30166**	**S19-Ap30167**	**S19-Ap30168**	**S19-Ap30169**
Date Sampled			**Apr 17, 2019**	**Apr 18, 2019**	**Apr 18, 2019**	**Apr 18, 2019**
Test/Reference	LOR	Unit				
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	%	-	37	33	48
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	-	0.2	< 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)	0.4	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	0.06
Chloride	1	mg/L	-	74	180	93
Cyanide (total)	0.005	mg/L	-	< 0.005	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.5	mg/L	-	< 0.5	< 0.5	6.2
Nitrate (as N)	0.02	mg/L	-	0.10	0.03	< 0.02
Sulphate (as SO4)	5	mg/L	-	58	29	41
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	-	310	180	120
Carbonate Alkalinity (as CaCO3)	10	mg/L	-	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	-	54	42	13
Magnesium	0.5	mg/L	-	36	31	16
Potassium	0.5	mg/L	-	6.1	5.6	4.1
Sodium	0.5	mg/L	-	70	110	79

Client Sample ID			[R20]TRIP SPIKE	SRT_BH063	CSM_BH06	CSM_BH08
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Ap30166	S19-Ap30167	S19-Ap30168	S19-Ap30169
Date Sampled			Apr 17, 2019	Apr 18, 2019	Apr 18, 2019	Apr 18, 2019
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	-	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	-	0.055	0.009	< 0.001
Lead (filtered)	0.001	mg/L	-	0.003	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	-	0.006	0.28	0.34
Mercury (filtered)	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	-	0.018	0.014	0.007
Zinc (filtered)	0.005	mg/L	-	0.085	0.032	0.020

Client Sample ID			QC02
Sample Matrix			Water
Eurofins | mgt Sample No.			S19-Ap30170
Date Sampled			Apr 18, 2019
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.01	mg/L	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	82
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

Client Sample ID			QC02
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**S19-Ap30170**
Date Sampled			**Apr 18, 2019**
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
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	%	82
p-Terphenyl-d14 (surr.)	1	%	87
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001
Nickel (filtered)	0.001	mg/L	0.007
Zinc (filtered)	0.005	mg/L	0.015

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	Sydney	Apr 18, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Sydney	Apr 18, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Apr 18, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Apr 18, 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	Sydney	Apr 18, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Apr 18, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Sydney	Apr 18, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Sydney	Apr 18, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8 filtered	Sydney	Apr 29, 2019	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Organochlorine Pesticides	Sydney	Apr 18, 2019	7 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	Apr 18, 2019	7 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	Apr 18, 2019	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
TRH - 2013 NEPM Fractions (after silica gel clean-up)	Sydney	Apr 18, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
TRH - 1999 NEPM Fractions (after silica gel clean-up)	Sydney	Apr 18, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Major Cations			
Ammonia (as N)	Melbourne	Apr 24, 2019	28 Day
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Alkali Metals	Melbourne	Apr 24, 2019	180 Day
- Method: LTM-MET-3010 Alkali Metals S Si and P by ICP-AES			
Major Anions			
Chloride	Melbourne	Apr 24, 2019	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Nitrate (as N)	Melbourne	Apr 24, 2019	28 Day
- Method: APHA 4500-NO3 Nitrate Nitrogen by FIA			
Sulphate (as SO4)	Melbourne	Apr 24, 2019	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Apr 24, 2019	14 Day
- Method: APHA 2320 Alkalinity by Titration			
Cyanide (total)	Sydney	Apr 18, 2019	14 Day
- Method: E054 Total Cyanide			
Ferrous Iron - Fe2+	Sydney	Apr 18, 2019	7 Days
- Method: LTM-INO-4190 Ferrous Iron in Water by Discrete Analyser			
Metals M8	Sydney	Apr 26, 2019	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Heavy Metals (filtered)	Sydney	Apr 30, 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 #: 651825
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Apr 18, 2019 11:53 AM
Due: Apr 30, 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				
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X			X	X	X	X
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	Apr 16, 2019		Water	S19-Ap30154	X	X	X		X	X	X			X	
2	SRT_BH052	Apr 16, 2019		Water	S19-Ap30155	X	X	X		X	X	X	X		X	
3	CSM_BH02	Apr 16, 2019		Water	S19-Ap30156	X	X	X		X	X	X			X	
4	CSM_BH04	Apr 16, 2019		Water	S19-Ap30157	X	X	X		X	X	X			X	
5	CSM_BH105	Apr 16, 2019		Water	S19-Ap30158	X	X	X		X	X	X			X	
6	SRT_BH059	Apr 17, 2019		Water	S19-Ap30159	X	X	X		X	X	X			X	
7	SRT_CBH015	Apr 17, 2019		Water	S19-Ap30160	X	X	X		X	X	X			X	
8	SRT_CBH017	Apr 17, 2019		Water	S19-Ap30161	X	X	X		X	X	X			X	
9	CSM_BH05	Apr 17, 2019		Water	S19-Ap30162	X	X	X		X	X	X	X		X	

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Company Name: GHD Pty Ltd NSW
Address: Level 15, 133 Castlereagh Street
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Project Name: CENTRAL
Project ID: 21-27234

Order No.:
Report #: 651825
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Apr 18, 2019 11:53 AM
Due: Apr 30, 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				
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X			X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
Perth Laboratory - NATA Site # 23736																
10	CSM_BH095	Apr 17, 2019		Water	S19-Ap30163	X	X	X		X	X	X			X	
11	RB01	Apr 17, 2019		Water	S19-Ap30164				X							
12	TRIP BLANK	Apr 17, 2019		Water	S19-Ap30165											X
13	TRIP SPIKE	Apr 17, 2019		Water	S19-Ap30166											X
14	SRT_BH063	Apr 18, 2019		Water	S19-Ap30167	X	X	X		X	X	X	X		X	
15	CSM_BH06	Apr 18, 2019		Water	S19-Ap30168	X	X	X		X	X	X	X		X	
16	CSM_BH08	Apr 18, 2019		Water	S19-Ap30169	X	X	X		X	X	X			X	
17	QC02	Apr 18, 2019		Water	S19-Ap30170									X		
Test Counts						13	13	13	1	13	13	13	4	1	13	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	
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	< 0.005			0.005	Pass	
Aroclor-1221	mg/L	< 0.001			0.001	Pass	
Aroclor-1232	mg/L	< 0.005			0.005	Pass	
Aroclor-1242	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1248	mg/L	< 0.005			0.005	Pass	
Aroclor-1254	mg/L	< 0.005			0.005	Pass	
Aroclor-1260	mg/L	< 0.005			0.005	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-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	< 0.5			0.5	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							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	%	127			70-130	Pass	
Naphthalene	%	103			70-130	Pass	
TRH C6-C10	%	92			70-130	Pass	
TRH C6-C10	%	93			70-130	Pass	
TRH >C10-C16	%	86			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	94			70-130	Pass	
TRH C10-C14	%	77			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	107			70-130	Pass	
Toluene	%	99			70-130	Pass	
Ethylbenzene	%	109			70-130	Pass	
m&p-Xylenes	%	110			70-130	Pass	
o-Xylene	%	112			70-130	Pass	
Xylenes - Total	%	111			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	78			70-130	Pass	
Acenaphthylene	%	77			70-130	Pass	
Anthracene	%	85			70-130	Pass	
Benz(a)anthracene	%	82			70-130	Pass	
Benzo(a)pyrene	%	82			70-130	Pass	
Benzo(b&j)fluoranthene	%	81			70-130	Pass	
Benzo(g.h.i)perylene	%	86			70-130	Pass	
Benzo(k)fluoranthene	%	87			70-130	Pass	
Chrysene	%	72			70-130	Pass	
Dibenz(a.h)anthracene	%	82			70-130	Pass	
Fluoranthene	%	82			70-130	Pass	
Fluorene	%	81			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	82			70-130	Pass	
Naphthalene	%	81			70-130	Pass	
Phenanthrene	%	80			70-130	Pass	
Pyrene	%	82			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	100			70-130	Pass	
4.4'-DDD	%	96			70-130	Pass	
4.4'-DDE	%	94			70-130	Pass	
4.4'-DDT	%	94			70-130	Pass	
a-BHC	%	96			70-130	Pass	
Aldrin	%	86			70-130	Pass	
b-BHC	%	100			70-130	Pass	
d-BHC	%	100			70-130	Pass	
Dieldrin	%	96			70-130	Pass	
Endosulfan I	%	96			70-130	Pass	
Endosulfan II	%	96			70-130	Pass	
Endosulfan sulphate	%	98			70-130	Pass	
Endrin	%	88			70-130	Pass	
Endrin aldehyde	%	72			70-130	Pass	
Endrin ketone	%	84			70-130	Pass	
g-BHC (Lindane)	%	98			70-130	Pass	
Heptachlor	%	88			70-130	Pass	
Heptachlor epoxide	%	94			70-130	Pass	
Hexachlorobenzene	%	70			70-130	Pass	
Methoxychlor	%	96			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	77			70-130	Pass	
Dimethoate	%	75			70-130	Pass	
Ethion	%	77			70-130	Pass	
Fenitrothion	%	79			70-130	Pass	
Methyl parathion	%	80			70-130	Pass	
Mevinphos	%	82			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	96			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	74			30-130	Pass	
2.4-Dichlorophenol	%	82			30-130	Pass	
2.4.5-Trichlorophenol	%	89			30-130	Pass	
2.4.6-Trichlorophenol	%	81			30-130	Pass	
2.6-Dichlorophenol	%	80			30-130	Pass	
4-Chloro-3-methylphenol	%	80			30-130	Pass	
Pentachlorophenol	%	88			30-130	Pass	
Tetrachlorophenols - Total	%	86			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	112			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	98			30-130	Pass	
2-Methylphenol (o-Cresol)	%	67			30-130	Pass	
2-Nitrophenol	%	84			30-130	Pass	
2.4-Dimethylphenol	%	74			30-130	Pass	
2.4-Dinitrophenol	%	83			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	68			30-130	Pass	
4-Nitrophenol	%	40			30-130	Pass	
Dinoseb	%	104			30-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenol	%	41			30-130	Pass	
LCS - % Recovery							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	%	87			70-130	Pass	
LCS - % Recovery							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	%	82			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	103			70-130	Pass	
Chloride	%	112			70-130	Pass	
Cyanide (total)	%	107			70-130	Pass	
Ferrous Iron - Fe2+	%	83			70-130	Pass	
Nitrate (as N)	%	103			70-130	Pass	
Sulphate (as SO4)	%	112			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO3)	%	94			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	116			70-130	Pass	
Magnesium	%	109			70-130	Pass	
Potassium	%	114			70-130	Pass	
Sodium	%	119			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	108			70-130	Pass	
Arsenic (filtered)	%	108			70-130	Pass	
Cadmium	%	115			70-130	Pass	
Cadmium (filtered)	%	111			70-130	Pass	
Chromium	%	112			70-130	Pass	
Chromium (filtered)	%	120			70-130	Pass	
Copper	%	109			70-130	Pass	
Copper (filtered)	%	126			70-130	Pass	
Lead	%	110			70-130	Pass	
Lead (filtered)	%	120			70-130	Pass	
Manganese (filtered)	%	120			70-130	Pass	
Mercury	%	120			70-130	Pass	
Mercury (filtered)	%	120			70-130	Pass	
Nickel	%	111			70-130	Pass	
Nickel (filtered)	%	125			70-130	Pass	
Zinc	%	105			70-130	Pass	
Zinc (filtered)	%	123			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Ammonia (as N)	S19-Ap33888	NCP	%	93			70-130	Pass	
Nitrate (as N)	B19-Ap33234	NCP	%	95			70-130	Pass	
Spike - % Recovery									
Alkalinity (speciated)				Result 1					
Carbonate Alkalinity (as CaCO3)	M19-Ap32678	NCP	%	18			70-130	Fail	Q08
Spike - % Recovery									
				Result 1					
Cyanide (total)	S19-Ap30155	CP	%	110			70-130	Pass	
Ferrous Iron - Fe2+	S19-Ap30155	CP	%	114			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S19-Ap30155	CP	%	95			70-130	Pass	
Cadmium (filtered)	S19-Ap30155	CP	%	95			70-130	Pass	
Chromium (filtered)	S19-Ap30155	CP	%	96			70-130	Pass	
Copper (filtered)	S19-Ap30155	CP	%	99			70-130	Pass	
Lead (filtered)	S19-Ap30155	CP	%	93			70-130	Pass	
Manganese (filtered)	S19-Ap30155	CP	%	96			70-130	Pass	
Mercury (filtered)	S19-Ap30155	CP	%	94			70-130	Pass	
Nickel (filtered)	S19-Ap30155	CP	%	98			70-130	Pass	
Zinc (filtered)	S19-Ap30155	CP	%	98			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S19-Ap30156	CP	%	112			70-130	Pass	
TRH C6-C10	S19-Ap30156	CP	%	80			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S19-Ap30156	CP	%	85			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S19-Ap30156	CP	%	101			70-130	Pass	
Toluene	S19-Ap30156	CP	%	93			70-130	Pass	
Ethylbenzene	S19-Ap30156	CP	%	104			70-130	Pass	
m&p-Xylenes	S19-Ap30156	CP	%	105			70-130	Pass	
o-Xylene	S19-Ap30156	CP	%	107			70-130	Pass	
Xylenes - Total	S19-Ap30156	CP	%	106			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	S19-Ap30159	CP	%	121			70-130	Pass	
Magnesium	S19-Ap30159	CP	%	111			70-130	Pass	
Potassium	S19-Ap30159	CP	%	107			70-130	Pass	
Sodium	S19-Ap30159	CP	%	109			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S19-Ap35819	NCP	%	121			70-130	Pass	
Cadmium	S19-Ap35819	NCP	%	109			70-130	Pass	
Chromium	S19-Ap35819	NCP	%	100			70-130	Pass	
Copper	S19-Ap35819	NCP	%	88			70-130	Pass	
Lead	S19-Ap35819	NCP	%	93			70-130	Pass	
Mercury	S19-Ap35819	NCP	%	108			70-130	Pass	
Nickel	S19-Ap35819	NCP	%	90			70-130	Pass	
Zinc	S19-Ap35819	NCP	%	84			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S19-Ap30168	CP	%	99			70-130	Pass	
TRH C6-C10	S19-Ap30168	CP	%	78			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S19-Ap30168	CP	%	83			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S19-Ap30168	CP	%	102			70-130	Pass	
Toluene	S19-Ap30168	CP	%	95			70-130	Pass	
Ethylbenzene	S19-Ap30168	CP	%	104			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
m&p-Xylenes	S19-Ap30168	CP	%	104			70-130	Pass	
o-Xylene	S19-Ap30168	CP	%	106			70-130	Pass	
Xylenes - Total	S19-Ap30168	CP	%	105			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chloride	S19-Ap30169	CP	%	92			70-130	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)	S19-Ap31561	NCP	mg/L	59	58	1.0	30%	Pass	
Cyanide (total)	S19-Ap30154	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Ferrous Iron - Fe2+	S19-Ap30154	CP	mg/L	< 0.5	< 0.5	<1	30%	Pass	
Nitrate (as N)	S19-Ap31561	NCP	mg/L	320	320	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S19-Ap30154	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	S19-Ap30154	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S19-Ap30154	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S19-Ap30154	CP	mg/L	0.002	0.002	5.0	30%	Pass	
Manganese (filtered)	S19-Ap30154	CP	mg/L	0.023	0.023	1.0	30%	Pass	
Nickel (filtered)	S19-Ap30154	CP	mg/L	0.001	0.001	3.0	30%	Pass	
Zinc (filtered)	S19-Ap30154	CP	mg/L	0.013	0.013	3.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S19-Ap30155	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S19-Ap30155	CP	mg/L	0.03	0.03	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S19-Ap30155	CP	mg/L	0.03	0.03	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S19-Ap30155	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S19-Ap30155	CP	mg/L	0.014	0.014	1.0	30%	Pass	
Ethylbenzene	S19-Ap30155	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S19-Ap30155	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S19-Ap30155	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	S19-Ap30155	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	S19-Ap30157	CP	mg/L	65	64	2.0	30%	Pass	
Sulphate (as SO4)	S19-Ap30157	CP	mg/L	55	56	1.0	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	S19-Ap30159	CP	mg/L	49	54	9.0	30%	Pass	
Magnesium	S19-Ap30159	CP	mg/L	6.0	5.4	12	30%	Pass	
Potassium	S19-Ap30159	CP	mg/L	5.8	5.5	6.0	30%	Pass	
Sodium	S19-Ap30159	CP	mg/L	8.2	7.8	5.0	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	S19-Ap30160	CP	mg/L	39	39	1.0	30%	Pass	
Carbonate Alkalinity (as CaCO3)	S19-Ap30160	CP	mg/L	< 10	< 10	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Cadmium	S19-Ap30164	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	S19-Ap30164	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	S19-Ap30164	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	S19-Ap30164	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Nickel	S19-Ap30164	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S19-Ap30167	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S19-Ap30167	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	S19-Ap30167	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S19-Ap30167	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S19-Ap30167	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S19-Ap30167	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S19-Ap30167	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S19-Ap30167	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	S19-Ap30167	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S19-Ap30167	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	S19-Ap30167	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S19-Ap30167	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S19-Ap30167	CP	mg/L	0.055	0.057	2.0	30%	Pass	
Lead (filtered)	S19-Ap30167	CP	mg/L	0.003	0.003	<1	30%	Pass	
Manganese (filtered)	S19-Ap30167	CP	mg/L	0.006	0.007	3.0	30%	Pass	
Mercury (filtered)	S19-Ap30167	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S19-Ap30167	CP	mg/L	0.018	0.018	1.0	30%	Pass	
Zinc (filtered)	S19-Ap30167	CP	mg/L	0.085	0.086	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Cyanide (total)	S19-Ap30169	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Ferrous Iron - Fe2+	S19-Ap30169	CP	mg/L	6.2	6.0	<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
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference
R20	This sample is a Trip Spike and therefore all results are reported as a percentage

Authorised By

Nibha Vaidya	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
Emily Rosenberg	Senior Analyst-Metal (VIC)
Gabriele Cordero	Senior Analyst-Inorganic (NSW)
Gabriele Cordero	Senior Analyst-Metal (NSW)
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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Email: enquiries.melb@mgtlabmark.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS Page 1 of 2

Company Name : GHD Pty Ltd, Sydney	**Contact Name :** Terry Nham / James Hamilton	**Purchase Order :**	**COC Number :**
Office Address :	**Project Manager :** Henry Luo	**PROJECT Number :** 21-27234	**Eurofins | mgt quote ID :** GHD Rates 2019
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results :** terry.nham@ghd.com james.hamilton@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	pH	TSS	TDS
1	CSM_BH02	14/5/19	Water	X	X	X	X	X	X				X	X	X	X	X
2	CSM_BH04	13/5/19	Water	X	X	X	X	X	X				X	X	X	X	X
3	CSM_BH05	13/5/19	Water	X	X	X	X	X	X				X	X	X	X	X
4	CSM_BH06	14/5/19	Water	X	X	X	X	X	X				X	X	X	X	X
5	CSM_BH08	15/5/19	Water	X	X	X	X	X	X				X	X	X	X	X
6	CSM_BH09S	13/5/19	Water	X	X	X	X	X	X				X	X	X	X	X
7	CSM_BH10S	13/5/19	Water	X	X	X	X	X	X				X	X	X	X	X
8	SRT_BH047	14/5/19	Water	X	X	X	X	X	X				X	X	X	X	X
9	SRT_BH052	14/5/19	Water	X	X	X	X	X	X				X	X	X	X	X
10	SRT_BH059	15/5/19	Water	X	X	X	X	X	X				X	X	X	X	X
11	SRT_BH063	15/5/19	Water	X	X	X	X	X	X				X	X	X	X	X
12	SRT_CBH015	15/5/19	Water	X	X	X	X	X	X				X	X	X	X	X
13	SRT_CBH017	15/5/19	Water	X	X	X	X	X	X				X	X	X	X	X
14	QC01	13/5/19	Water	PLEASE SEND TO ALS WITH ATTACHED COC													
15	QC02	14/5/19	Water									X					
16	RB01	14/5/19	Water								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	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		4		2	2			
10	1		4		2	2			
11	1		4		2	2			
12	1		4		2	2			
13	1		4		2	2			
14	1		4		2	2			
15	1		4		2	2			
16			1						

Laboratory Staff

Relinquished By: Terry Nham - GHD
Date & Time : 15/5/2019
Signature:

Received By:
Date & Time : 16/5/19 4:25PM
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: 656-80

16/5 9a

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS Page 2 of 2

Company Name : GHD Pty Ltd, Sydney	**Contact Name :** Terry Nham / [redacted]	**Purchase Order :**	**COC Number :**
Office Address :	**Project Manager :** Henry Luo	**PROJECT Number :** 21-27234	**Eurofins | mgt quote ID :** GHD Rates 2019
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results :** terry.nham@ghd.com [redacted] 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	pH
1	Trip Blank	13/5/19	Water							X					
2	Trip Spike	13/5/19	Water							X					
3															
4															
5															
6															
7															
8															
9															
10															
11															
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
				2			
				2			

Sample comments:

Relinquished By: Terry Nham - GHD
Date & Time : 15/5/2019
Signature:

Laboratory Staff
Received By: Suzanne Ford
Date & Time : 15/5/19 4:25pm
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:

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 5500 E: gladstone@alsglobal.com
☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@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 / [redacted] — SAMPLER MOBILE: 0403 251 883
COC emailed to ALS? (YES / NO) — EDD FORMAT (or default):
Email Reports to: henry.luo@ghd.com ja[redacted] terry.nham@ghd.com
Email Invoice to (will default to PM if no other addresses are listed):

TURNAROUND REQUIREMENTS (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)
☒ Standard TAT (List due date):
☐ Non Standard or urgent TAT (List due date):

ALS QUOTE NO.: EN/006/18

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)	[signature]		
DATE/TIME: 15/5/2019	DATE/TIME: 15/5/19 @ 1:28pm	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 / 8 Metals (W-26)
	QC01	13/5/2019	Water		9	X

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 Sulfate Soils; B = Unpreserved Ba

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NATA # 1261
Site # 1254 & 14271

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NATA # 1261 Site # 18217

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NATA # 1261 Site # 20794

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Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**GHD Pty Ltd NSW**
Contact name:	Henry Luo
Project name:	CENTRAL
Project ID:	21-27234
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	May 15, 2019 4:25 PM
Eurofins | mgt reference:	**656080**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 5 degrees Celsius.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☑ Sample containers for volatile analysis received with zero headspace.

☑ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8415 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Henry Luo - henry.luo@ghd.com.

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 **656080-W**
Project name CENTRAL
Project ID 21-27234
Received Date May 15, 2019

Client Sample ID **Sample Matrix** **Eurofins | mgt Sample No.** **Date Sampled** Test/Reference	LOR	Unit	**CSM_BH02** **Water** **M19-My25534** **May 14, 2019**	**CSM_BH04** **Water** **M19-My25535** **May 13, 2019**	**CSM_BH05** **Water** **M19-My25536** **May 13, 2019**	**CSM_BH06** **Water** **M19-My25537** **May 14, 2019**
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	%	106	59	129	109
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			CSM_BH02	CSM_BH04	CSM_BH05	CSM_BH06
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M19-My25534	M19-My25535	M19-My25536	M19-My25537
Date Sampled			May 14, 2019	May 13, 2019	May 13, 2019	May 14, 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	%	52	53	69	71
p-Terphenyl-d14 (surr.)	1	%	51	51	113	98
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	%	51	50	106	98
Tetrachloro-m-xylene (surr.)	1	%	62	62	84	81
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			CSM_BH02	CSM_BH04	CSM_BH05	CSM_BH06
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M19-My25534	M19-My25535	M19-My25536	M19-My25537
Date Sampled			May 14, 2019	May 13, 2019	May 13, 2019	May 14, 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	%	53	54	113	105
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	%	51	50	106	98
Tetrachloro-m-xylene (surr.)	1	%	62	62	84	81
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			CSM_BH02	CSM_BH04	CSM_BH05	CSM_BH06
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M19-My25534	M19-My25535	M19-My25536	M19-My25537
Date Sampled			May 14, 2019	May 13, 2019	May 13, 2019	May 14, 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	%	30	29	23	25
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	0.12	< 0.01	< 0.01	0.02
Chloride	1	mg/L	68	56	190	220
Cyanide (total)	0.005	mg/L	0.005	< 0.005	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.05	mg/L	1.4	0.12	0.99	2.6
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
pH (at 25°C)	0.1	pH Units	8.5	7.3	8.2	8.0
Sulphate (as SO4)	5	mg/L	38	56	54	23
Total Dissolved Solids Dried at 180°C	10	mg/L	410	260	560	580
Total Suspended Solids Dried at 103–105°C	1	mg/L	3300	3700	620	250
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	240	85	220	190
Carbonate Alkalinity (as CaCO3)	10	mg/L	11	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	43	5.2	33	41
Magnesium	0.5	mg/L	26	9.5	29	35
Potassium	0.5	mg/L	3.2	2.4	6.2	5.1
Sodium	0.5	mg/L	64	66	130	100
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	0.001	0.002
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	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.55	0.30	0.37	0.25
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.012	0.029	0.008	0.011
Zinc (filtered)	0.005	mg/L	0.010	0.29	0.027	0.054

Client Sample ID			CSM_BH08	CSM_BH09S	CSM_BH10S	SRT_BH047
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M19-My25538	M19-My25539	M19-My25540	M19-My25541
Date Sampled			May 15, 2019	May 13, 2019	May 13, 2019	May 14, 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	%	106	117	132	117
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	%	64	101	87	103
p-Terphenyl-d14 (surr.)	1	%	88	137	69	120
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			CSM_BH08	CSM_BH09S	CSM_BH10S	SRT_BH047
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M19-My25538	M19-My25539	M19-My25540	M19-My25541
Date Sampled			May 15, 2019	May 13, 2019	May 13, 2019	May 14, 2019
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	%	86	128	64	121
Tetrachloro-m-xylene (surr.)	1	%	68	105	96	122
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			CSM_BH08	CSM_BH09S	CSM_BH10S	SRT_BH047
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M19-My25538	M19-My25539	M19-My25540	M19-My25541
Date Sampled			May 15, 2019	May 13, 2019	May 13, 2019	May 14, 2019
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	%	83	126	66	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	%	86	128	64	121
Tetrachloro-m-xylene (surr.)	1	%	68	105	96	122
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	%	21	47	22	38
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			CSM_BH08	CSM_BH09S	CSM_BH10S	SRT_BH047
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M19-My25538	M19-My25539	M19-My25540	M19-My25541
Date Sampled			May 15, 2019	May 13, 2019	May 13, 2019	May 14, 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	< 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	0.10	< 0.01	< 0.01
Chloride	1	mg/L	92	57	130	43
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.05	mg/L	5.0	7.1	0.13	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	1.7	23
pH (at 25°C)	0.1	pH Units	7.9	7.4	6.6	8.1
Sulphate (as SO4)	5	mg/L	42	190	350	11
Total Dissolved Solids Dried at 180°C	10	mg/L	310	460	270	360
Total Suspended Solids Dried at 103–105°C	1	mg/L	180	66	210	40
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	120	76	< 20	120
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	11	6.2	4.0	51
Magnesium	0.5	mg/L	16	7.3	5.6	9.7
Potassium	0.5	mg/L	3.3	4.5	3.3	1.2
Sodium	0.5	mg/L	71	100	45	34
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	< 0.001	0.003	0.002
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.30	0.54	0.43	< 0.005
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.003	0.004	0.002	< 0.001
Zinc (filtered)	0.005	mg/L	0.015	0.019	0.011	< 0.005

Client Sample ID			SRT_BH052	SRT_BH059	SRT_BH063	SRT_CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M19-My25542	M19-My25543	M19-My25544	M19-My25545
Date Sampled			May 14, 2019	May 15, 2019	May 15, 2019	May 15, 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

Client Sample ID			SRT_BH052	SRT_BH059	SRT_BH063	SRT_CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M19-My25542	M19-My25543	M19-My25544	M19-My25545
Date Sampled			May 14, 2019	May 15, 2019	May 15, 2019	May 15, 2019
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	%	87	108	95	119
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	%	55	61	91	62
p-Terphenyl-d14 (surr.)	1	%	76	101	127	85
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_BH052	SRT_BH059	SRT_BH063	SRT_CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M19-My25542	M19-My25543	M19-My25544	M19-My25545
Date Sampled			May 14, 2019	May 15, 2019	May 15, 2019	May 15, 2019
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	%	79	102	132	87
Tetrachloro-m-xylene (surr.)	1	%	66	78	104	74
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	%	86	111	133	97

Client Sample ID			SRT_BH052	SRT_BH059	SRT_BH063	SRT_CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M19-My25542	M19-My25543	M19-My25544	M19-My25545
Date Sampled			May 14, 2019	May 15, 2019	May 15, 2019	May 15, 2019
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	%	79	102	132	87
Tetrachloro-m-xylene (surr.)	1	%	66	78	104	74
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	%	24	26	30	25
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	0.03
Chloride	1	mg/L	56	22	89	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	8.3	3.2	< 0.02	3.0
pH (at 25°C)	0.1	pH Units	7.7	8.1	8.2	6.5

Client Sample ID			SRT_BH052	SRT_BH059	SRT_BH063	SRT_CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M19-My25542	M19-My25543	M19-My25544	M19-My25545
Date Sampled			May 14, 2019	May 15, 2019	May 15, 2019	May 15, 2019
Test/Reference	LOR	Unit				
Sulphate (as SO4)	5	mg/L	26	27	49	48
Total Dissolved Solids Dried at 180°C	10	mg/L	230	270	460	140
Total Suspended Solids Dried at 103–105°C	1	mg/L	110	21	20	1.7
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	90	210	340	34
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	23	65	50	2.7
Magnesium	0.5	mg/L	5.2	6.9	33	5.3
Potassium	0.5	mg/L	1.5	7.1	5.7	3.5
Sodium	0.5	mg/L	47	11	62	29
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.002	0.006	0.005	0.007
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	5.1
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	< 0.001	0.005	0.009
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	0.014	0.024

Client Sample ID			SRT_CBH017	QC02	RB01	TRIP BLANK
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			M19-My25546	M19-My25547	M19-My25548	M19-My25549
Date Sampled			May 15, 2019	May 14, 2019	May 14, 2019	May 13, 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	-	-
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	-	< 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	-	< 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

Client Sample ID			SRT_CBH017	QC02	RB01	TRIP BLANK
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M19-My25546**	**M19-My25547**	**M19-My25548**	**M19-My25549**
Date Sampled			**May 15, 2019**	**May 14, 2019**	**May 14, 2019**	**May 13, 2019**
Test/Reference	LOR	Unit				
BTEX						
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	%	101	116	-	93
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	%	63	77	-	-
p-Terphenyl-d14 (surr.)	1	%	89	85	-	-
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	-	-	-
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	-	-	-

Client Sample ID			SRT_CBH017	QC02	RB01	TRIP BLANK
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M19-My25546**	**M19-My25547**	**M19-My25548**	**M19-My25549**
Date Sampled			**May 15, 2019**	**May 14, 2019**	**May 14, 2019**	**May 13, 2019**
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Dibutylchlorendate (surr.)	1	%	89	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	76	-	-	-
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	%	98	-	-	-
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	-	-	-
Aroclor-1260	0.001	mg/L	< 0.001	-	-	-
Total PCB*	0.001	mg/L	< 0.001	-	-	-
Dibutylchlorendate (surr.)	1	%	89	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	76	-	-	-

Client Sample ID			SRT_CBH017	QC02	RB01	TRIP BLANK
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M19-My25546**	**M19-My25547**	**M19-My25548**	**M19-My25549**
Date Sampled			**May 15, 2019**	**May 14, 2019**	**May 14, 2019**	**May 13, 2019**
Test/Reference	LOR	Unit				
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	%	27	-	-	-
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	19	-	-	-
Cyanide (total)	0.005	mg/L	< 0.005	-	-	-
Ferrous Iron - Fe2+	0.05	mg/L	< 0.05	-	-	-
Nitrate (as N)	0.02	mg/L	4.4	-	-	-
pH (at 25°C)	0.1	pH Units	6.7	-	-	-
Sulphate (as SO4)	5	mg/L	17	-	-	-
Total Dissolved Solids Dried at 180°C	10	mg/L	88	-	-	-
Total Suspended Solids Dried at 103–105°C	1	mg/L	16	-	-	-
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	30	-	-	-
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	-	-	-
Alkali Metals						
Calcium	0.5	mg/L	10	-	-	-
Magnesium	0.5	mg/L	6.8	-	-	-
Potassium	0.5	mg/L	3.0	-	-	-
Sodium	0.5	mg/L	11	-	-	-

Client Sample ID			SRT_CBH017	QC02	RB01	TRIP BLANK
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M19-My25546**	**M19-My25547**	**M19-My25548**	**M19-My25549**
Date Sampled			**May 15, 2019**	**May 14, 2019**	**May 14, 2019**	**May 13, 2019**
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	0.001	mg/L	-	-	< 0.001	-
Arsenic (filtered)	0.001	mg/L	< 0.001	0.002	-	-
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	0.003	< 0.001	-	-
Lead	0.001	mg/L	-	-	< 0.001	-
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	-	-
Manganese (filtered)	0.005	mg/L	0.70	-	-	-
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	0.004	0.011	-	-
Zinc	0.005	mg/L	-	-	< 0.005	-
Zinc (filtered)	0.005	mg/L	0.008	0.053	-	-

Client Sample ID			[R20]TRIP SPIKE
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**M19-My25550**
Date Sampled			**May 13, 2019**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.01	mg/L	79
TRH C6-C10	0.02	mg/L	91
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	80
BTEX			
Benzene	0.001	mg/L	110
Toluene	0.001	mg/L	93
Ethylbenzene	0.001	mg/L	98
m&p-Xylenes	0.002	mg/L	84
o-Xylene	0.001	mg/L	96
Xylenes - Total	0.003	mg/L	88
4-Bromofluorobenzene (surr.)	1	%	147

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	May 17, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Melbourne	May 17, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	May 17, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	May 17, 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	May 17, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	May 17, 2019	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Melbourne	May 17, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	May 17, 2019	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8 filtered	Melbourne	May 17, 2019	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins | mgt Suite B15			
Organochlorine Pesticides	Melbourne	May 17, 2019	7 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Melbourne	May 17, 2019	7 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Melbourne	May 17, 2019	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
TRH - 2013 NEPM Fractions (after silica gel clean-up)	Melbourne	May 17, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
TRH - 1999 NEPM Fractions (after silica gel clean-up)	Melbourne	May 17, 2019	7 Day
- Method: TRH C6-C36 (Silica Gel Cleanup) - MGT 100A			
Eurofins | mgt Suite B11			
Ammonia (as N)	Melbourne	May 17, 2019	28 Day
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Chloride	Melbourne	May 17, 2019	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Nitrate (as N)	Melbourne	May 17, 2019	28 Day
- Method: APHA 4500-NO3 Nitrate Nitrogen by FIA			
Sulphate (as SO4)	Melbourne	May 17, 2019	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	May 17, 2019	14 Day
- Method: APHA 2320 Alkalinity by Titration			
Alkali Metals	Melbourne	May 17, 2019	180 Day
- Method: LTM-MET-3010 Alkali Metals S Si and P by ICP-AES			
Cyanide (total)	Melbourne	May 21, 2019	14 Day
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Ferrous Iron - Fe2+	Melbourne	May 17, 2019	7 Days
- Method: LTM-INO-4190 Ferrous Iron in Water by Discrete Analyser			
pH (at 25°C)	Melbourne	May 17, 2019	0 Hours
- Method: LTM-GEN-7090 pH in water by ISE			
Total Dissolved Solids Dried at 180°C	Melbourne	May 17, 2019	7 Day

Description	Testing Site	Extracted	Holding Time
- Method: LTM-INO-4170 Total Dissolved Solids in Water			
Total Suspended Solids Dried at 103–105°C	Melbourne	May 17, 2019	7 Days
- Method: LTM-INO-4070 Analysis of Suspended Solids in Water by Gravimetry			
Metals M8	Melbourne	May 17, 2019	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Heavy Metals (filtered)	Melbourne	May 17, 2019	180 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

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NATA # 1261
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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 #: 656080
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: May 15, 2019 4:25 PM
Due: May 22, 2019
Priority: 5 Day
Contact Name: Henry Luo

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	pH (at 25°C)	Total Dissolved Solids Dried at 180°C	Total Suspended Solids Dried at 103–105°C	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	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	CSM_BH02	May 14, 2019		Water	M19-My25534	X	X	X	X	X	X		X	X	X		X	
2	CSM_BH04	May 13, 2019		Water	M19-My25535	X	X	X	X	X	X		X	X	X		X	
3	CSM_BH05	May 13, 2019		Water	M19-My25536	X	X	X	X	X	X		X	X	X		X	
4	CSM_BH06	May 14, 2019		Water	M19-My25537	X	X	X	X	X	X		X	X	X		X	
5	CSM_BH08	May 15, 2019		Water	M19-My25538	X	X	X	X	X	X		X	X	X		X	
6	CSM_BH09S	May 13, 2019		Water	M19-My25539	X	X	X	X	X	X		X	X	X		X	
7	CSM_BH10S	May 13, 2019		Water	M19-My25540	X	X	X	X	X	X		X	X	X		X	
8	SRT_BH047	May 14, 2019		Water	M19-My25541	X	X	X	X	X	X		X	X	X		X	
9	SRT_BH052	May 14, 2019		Water	M19-My25542	X	X	X	X	X	X		X	X	X		X	

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Sample Detail						Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	pH (at 25°C)	Total Dissolved Solids Dried at 180°C	Total Suspended Solids Dried at 103–105°C	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	X	X	X
Sydney Laboratory - NATA Site # 18217																		
Brisbane Laboratory - NATA Site # 20794																		
Perth Laboratory - NATA Site # 23736																		
10	SRT_BH059	May 15, 2019		Water	M19-My25543	X	X	X	X	X	X		X	X	X		X	
11	SRT_BH063	May 15, 2019		Water	M19-My25544	X	X	X	X	X	X		X	X	X		X	
12	SRT_CBH015	May 15, 2019		Water	M19-My25545	X	X	X	X	X	X		X	X	X		X	
13	SRT_CBH017	May 15, 2019		Water	M19-My25546	X	X	X	X	X	X		X	X	X		X	
14	QC02	May 14, 2019		Water	M19-My25547											X		
15	RB01	May 14, 2019		Water	M19-My25548							X						
16	TRIP BLANK	May 13, 2019		Water	M19-My25549													X
17	TRIP SPIKE	May 13, 2019		Water	M19-My25550													X
Test Counts						13	13	13	13	13	13	1	13	13	13	1	13	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	
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	
Total Dissolved Solids Dried at 180°C	mg/L	< 10			10	Pass	
Total Suspended Solids Dried at 103–105°C	mg/L	< 1			1	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	%	115			70-130	Pass	
TRH C6-C10	%	104			70-130	Pass	
TRH >C10-C16	%	102			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	98			70-130	Pass	
TRH C10-C14	%	104			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	101			70-130	Pass	
Toluene	%	87			70-130	Pass	
Ethylbenzene	%	101			70-130	Pass	
m&p-Xylenes	%	88			70-130	Pass	
Xylenes - Total	%	93			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	78			70-130	Pass	
Acenaphthylene	%	80			70-130	Pass	
Anthracene	%	75			70-130	Pass	
Benz(a)anthracene	%	83			70-130	Pass	
Benzo(a)pyrene	%	92			70-130	Pass	
Benzo(b&j)fluoranthene	%	71			70-130	Pass	
Benzo(g.h.i)perylene	%	91			70-130	Pass	
Benzo(k)fluoranthene	%	90			70-130	Pass	
Chrysene	%	120			70-130	Pass	
Dibenz(a.h)anthracene	%	74			70-130	Pass	
Fluoranthene	%	71			70-130	Pass	
Fluorene	%	71			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	75			70-130	Pass	
Naphthalene	%	101			70-130	Pass	
Phenanthrene	%	80			70-130	Pass	
Pyrene	%	71			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	93			70-130	Pass	
Dimethoate	%	83			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ethion	%	97			70-130	Pass	
Fenitrothion	%	79			70-130	Pass	
Methyl parathion	%	104			70-130	Pass	
Mevinphos	%	78			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	95			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	85			30-130	Pass	
2.4-Dichlorophenol	%	108			30-130	Pass	
2.4.5-Trichlorophenol	%	46			30-130	Pass	
2.4.6-Trichlorophenol	%	65			30-130	Pass	
2.6-Dichlorophenol	%	102			30-130	Pass	
4-Chloro-3-methylphenol	%	73			30-130	Pass	
Pentachlorophenol	%	54			30-130	Pass	
Tetrachlorophenols - Total	%	75			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	31			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	74			30-130	Pass	
2-Methylphenol (o-Cresol)	%	77			30-130	Pass	
2-Nitrophenol	%	93			30-130	Pass	
2.4-Dimethylphenol	%	111			30-130	Pass	
2.4-Dinitrophenol	%	40			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	66			30-130	Pass	
4-Nitrophenol	%	74			30-130	Pass	
Dinoseb	%	89			30-130	Pass	
Phenol	%	43			30-130	Pass	
LCS - % Recovery							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	%	81			70-130	Pass	
LCS - % Recovery							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	%	85			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	107			70-130	Pass	
Chloride	%	104			70-130	Pass	
Cyanide (total)	%	130			70-130	Pass	
Ferrous Iron - Fe2+	%	111			70-130	Pass	
Nitrate (as N)	%	101			70-130	Pass	
Sulphate (as SO4)	%	110			70-130	Pass	
Total Dissolved Solids Dried at 180°C	%	119			70-130	Pass	
Total Suspended Solids Dried at 103–105°C	%	98			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO3)	%	103			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	94			70-130	Pass	
Magnesium	%	89			70-130	Pass	
Potassium	%	96			70-130	Pass	
Sodium	%	107			70-130	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heavy Metals							
Arsenic	%	93			80-120	Pass	
Arsenic (filtered)	%	93			80-120	Pass	
Cadmium	%	98			80-120	Pass	
Cadmium (filtered)	%	98			80-120	Pass	
Chromium	%	98			80-120	Pass	
Chromium (filtered)	%	98			80-120	Pass	
Copper	%	94			80-120	Pass	
Copper (filtered)	%	94			80-120	Pass	
Lead	%	97			80-120	Pass	
Lead (filtered)	%	97			80-120	Pass	
Manganese (filtered)	%	96			80-120	Pass	
Mercury	%	99			75-125	Pass	
Mercury (filtered)	%	99			70-130	Pass	
Nickel	%	96			80-120	Pass	
Nickel (filtered)	%	96			80-120	Pass	
Zinc	%	97			80-120	Pass	
Zinc (filtered)	%	97			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-My25948	NCP	%	78			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	M19-My25948	NCP	%	79			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S19-My27605	NCP	%	95			70-130	Pass	
Acenaphthylene	S19-My27605	NCP	%	104			70-130	Pass	
Anthracene	S19-My27605	NCP	%	89			70-130	Pass	
Benz(a)anthracene	S19-My27605	NCP	%	72			70-130	Pass	
Benzo(a)pyrene	S19-My27605	NCP	%	79			70-130	Pass	
Benzo(b&j)fluoranthene	S19-My27605	NCP	%	86			70-130	Pass	
Benzo(g.h.i)perylene	S19-My27605	NCP	%	75			70-130	Pass	
Benzo(k)fluoranthene	S19-My27605	NCP	%	101			70-130	Pass	
Chrysene	S19-My27605	NCP	%	104			70-130	Pass	
Dibenz(a.h)anthracene	S19-My27605	NCP	%	74			70-130	Pass	
Fluoranthene	S19-My27605	NCP	%	108			70-130	Pass	
Fluorene	S19-My27605	NCP	%	99			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S19-My27605	NCP	%	89			70-130	Pass	
Naphthalene	S19-My27605	NCP	%	92			70-130	Pass	
Phenanthrene	S19-My27605	NCP	%	86			70-130	Pass	
Pyrene	S19-My27605	NCP	%	113			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S19-My27605	NCP	%	88			70-130	Pass	
Dimethoate	S19-My27605	NCP	%	79			70-130	Pass	
Ethion	S19-My27605	NCP	%	112			70-130	Pass	
Fenitrothion	S19-My27605	NCP	%	88			70-130	Pass	
Methyl parathion	S19-My27605	NCP	%	79			70-130	Pass	
Mevinphos	S19-My27605	NCP	%	76			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	S19-My27605	NCP	%	76			30-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2.4-Dichlorophenol	S19-My27605	NCP	%	87			30-130	Pass	
2.4.5-Trichlorophenol	S19-My27605	NCP	%	40			30-130	Pass	
2.4.6-Trichlorophenol	S19-My27605	NCP	%	57			30-130	Pass	
2.6-Dichlorophenol	S19-My27605	NCP	%	71			30-130	Pass	
4-Chloro-3-methylphenol	S19-My27605	NCP	%	64			30-130	Pass	
Pentachlorophenol	S19-My27605	NCP	%	63			30-130	Pass	
Tetrachlorophenols - Total	S19-My27605	NCP	%	61			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	S19-My27605	NCP	%	97			30-130	Pass	
2-Methyl-4.6-dinitrophenol	S19-My27605	NCP	%	89			30-130	Pass	
2-Methylphenol (o-Cresol)	S19-My27605	NCP	%	66			30-130	Pass	
2-Nitrophenol	S19-My27605	NCP	%	71			30-130	Pass	
2.4-Dimethylphenol	S19-My27605	NCP	%	93			30-130	Pass	
2.4-Dinitrophenol	S19-My27605	NCP	%	86			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	S19-My27605	NCP	%	57			30-130	Pass	
4-Nitrophenol	M19-My07132	NCP	%	124			30-130	Pass	
Dinoseb	S19-My27605	NCP	%	100			30-130	Pass	
Phenol	S19-My27605	NCP	%	34			30-130	Pass	
Spike - % Recovery									
				Result 1					
Chloride	M19-My25934	NCP	%	89			70-130	Pass	
Ferrous Iron - Fe2+	M19-My25414	NCP	%	90			70-130	Pass	
Sulphate (as SO4)	M19-My25944	NCP	%	88			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M19-My25535	CP	%	100			70-130	Pass	
Cyanide (total)	M19-My25535	CP	%	127			70-130	Pass	
Nitrate (as N)	M19-My25535	CP	%	99			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M19-My25536	CP	%	101			70-130	Pass	
Magnesium	M19-My25536	CP	%	102			70-130	Pass	
Potassium	M19-My25536	CP	%	99			70-130	Pass	
Sodium	M19-My25536	CP	%	105			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M19-My25539	CP	%	89			75-125	Pass	
Arsenic (filtered)	M19-My25539	CP	%	89			70-130	Pass	
Cadmium	M19-My25539	CP	%	95			75-125	Pass	
Cadmium (filtered)	M19-My25539	CP	%	95			70-130	Pass	
Chromium	M19-My25539	CP	%	94			75-125	Pass	
Chromium (filtered)	M19-My25539	CP	%	94			70-130	Pass	
Copper	M19-My25539	CP	%	91			75-125	Pass	
Copper (filtered)	M19-My25539	CP	%	91			70-130	Pass	
Lead	M19-My25539	CP	%	94			75-125	Pass	
Lead (filtered)	M19-My25539	CP	%	94			70-130	Pass	
Manganese (filtered)	M19-My25539	CP	%	80			70-130	Pass	
Nickel	M19-My25539	CP	%	91			75-125	Pass	
Nickel (filtered)	M19-My25539	CP	%	91			70-130	Pass	
Zinc	M19-My25539	CP	%	95			75-125	Pass	
Zinc (filtered)	M19-My25539	CP	%	95			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Arsenic (filtered)	M19-My28680	NCP	%	99			70-130	Pass	
Cadmium (filtered)	M19-My28680	NCP	%	96			70-130	Pass	
Chromium (filtered)	M19-My28680	NCP	%	98			70-130	Pass	
Copper (filtered)	M19-My28680	NCP	%	95			70-130	Pass	
Lead (filtered)	M19-My25956	NCP	%	98			70-130	Pass	
Mercury (filtered)	M19-My28680	NCP	%	88			70-130	Pass	
Nickel (filtered)	M19-My28680	NCP	%	95			70-130	Pass	
Zinc (filtered)	M19-My28680	NCP	%	96			70-130	Pass	
Spike - % Recovery									
Alkalinity (speciated)				Result 1					
Carbonate Alkalinity (as CaCO3)	M19-My27945	NCP	%	103			70-130	Pass	
Spike - % Recovery									
				Result 1					
Cyanide (total)	M19-My25543	CP	%	22			70-130	Fail	Q08
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M19-My25546	CP	%	103			70-130	Pass	
Magnesium	M19-My25546	CP	%	103			70-130	Pass	
Potassium	M19-My25546	CP	%	103			70-130	Pass	
Sodium	M19-My25546	CP	%	104			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M19-My26875	NCP	%	94			75-125	Pass	
Cadmium	M19-My26875	NCP	%	101			75-125	Pass	
Chromium	M19-My26875	NCP	%	100			75-125	Pass	
Copper	M19-My26875	NCP	%	97			75-125	Pass	
Lead	M19-My28472	NCP	%	108			75-125	Pass	
Mercury	M19-My26875	NCP	%	95			70-130	Pass	
Nickel	M19-My26875	NCP	%	98			75-125	Pass	
Zinc	M19-My26875	NCP	%	100			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M19-My25967	NCP	%	82			70-130	Pass	
TRH C6-C10	M19-My25967	NCP	%	122			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M19-My25967	NCP	%	118			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M19-My25967	NCP	%	101			70-130	Pass	
Toluene	M19-My25967	NCP	%	90			70-130	Pass	
Ethylbenzene	M19-My25967	NCP	%	91			70-130	Pass	
m&p-Xylenes	M19-My25967	NCP	%	84			70-130	Pass	
o-Xylene	M19-My25967	NCP	%	84			70-130	Pass	
Xylenes - Total	M19-My25967	NCP	%	84			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			
TRH >C10-C16	M19-My25947	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M19-My25947	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M19-My25947	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-My25947	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M19-My25947	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M19-My25947	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	M19-My26608	NCP	mg/L	250	260	2.0	30%	Pass	
Cyanide (total)	M19-My25534	CP	mg/L	0.005	< 0.005	15	30%	Pass	
Sulphate (as SO4)	M19-My26608	NCP	mg/L	210	190	11	30%	Pass	
Total Dissolved Solids Dried at 180°C	M19-My24730	NCP	mg/L	1900	1900	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M19-My25535	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Nitrate (as N)	M19-My25535	CP	mg/L	< 0.02	< 0.02	<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)	M19-My25536	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34 (after silica gel clean-up)	M19-My25536	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40 (after silica gel clean-up)	M19-My25536	CP	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-C36 (Total) (after silica gel clean-up)	M19-My25536	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C10-C14 (after silica gel clean-up)	M19-My25536	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28 (after silica gel clean-up)	M19-My25536	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36 (after silica gel clean-up)	M19-My25536	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M19-My25536	CP	mg/L	33	32	3.0	30%	Pass	
Magnesium	M19-My25536	CP	mg/L	29	29	3.0	30%	Pass	
Potassium	M19-My25536	CP	mg/L	6.2	6.2	1.0	30%	Pass	
Sodium	M19-My25536	CP	mg/L	130	120	2.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ferrous Iron - Fe2+	M19-My25537	CP	mg/L	2.6	2.6	2.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
pH (at 25°C)	M19-My25538	CP	pH Units	7.9	8.0	pass	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M19-My25538	CP	mg/L	120	110	4.0	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M19-My25538	CP	mg/L	< 10	< 10	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M19-My25539	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	M19-My25539	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	M19-My25539	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	

Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	M19-My25539	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4.4'-DDD	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDE	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDT	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
a-BHC	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Aldrin	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
b-BHC	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
d-BHC	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Dieldrin	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan I	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan II	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan sulphate	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin aldehyde	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin ketone	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
g-BHC (Lindane)	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor epoxide	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Hexachlorobenzene	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Methoxychlor	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Bolstar	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorfenvinphos	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorpyrifos	M19-My25539	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Chlorpyrifos-methyl	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Coumaphos	M19-My25539	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Demeton-S	M19-My25539	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-O	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Diazinon	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dichlorvos	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dimethoate	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Disulfoton	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
EPN	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethion	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethoprop	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethyl parathion	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenitrothion	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fensulfothion	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenthion	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Malathion	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Merphos	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methyl parathion	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Mevinphos	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Monocrotophos	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Naled	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Omethoate	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Phorate	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Pirimiphos-methyl	M19-My25539	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Pyrazophos	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ronnel	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Terbufos	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tetrachlorvinphos	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tokuthion	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Trichloronate	M19-My25539	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M19-My25539	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dichlorophenol	M19-My25539	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4.5-Trichlorophenol	M19-My25539	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	M19-My25539	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	M19-My25539	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
4-Chloro-3-methylphenol	M19-My25539	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Pentachlorophenol	M19-My25539	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Tetrachlorophenols - Total	M19-My25539	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M19-My25539	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M19-My25539	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M19-My25539	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Nitrophenol	M19-My25539	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dimethylphenol	M19-My25539	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	M19-My25539	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-My25539	CP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
4-Nitrophenol	M19-My25539	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Dinoseb	M19-My25539	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Phenol	M19-My25539	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
pH (at 25°C)	M19-My25539	CP	pH Units	7.4	7.3	pass	30%	Pass	
Total Suspended Solids Dried at 103–105°C	M19-My25539	CP	mg/L	66	63	4.0	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Arsenic (filtered)	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	M19-My25539	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Cadmium (filtered)	M19-My25539	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chromium (filtered)	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	M19-My25539	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	M19-My25539	CP	mg/L	0.54	0.51	7.0	30%	Pass	
Mercury	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Mercury (filtered)	M19-My25539	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	M19-My25539	CP	mg/L	0.004	0.004	4.0	30%	Pass	
Nickel (filtered)	M19-My25539	CP	mg/L	0.004	0.004	4.0	30%	Pass	
Zinc	M19-My25539	CP	mg/L	0.019	0.017	9.0	30%	Pass	
Zinc (filtered)	M19-My25539	CP	mg/L	0.019	0.017	9.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M19-My23974	NCP	mg/L	0.019	0.020	5.0	30%	Pass	
Cadmium (filtered)	M19-My23974	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M19-My23974	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	M19-My23974	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	M19-My23974	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	M19-My23974	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M19-My23974	NCP	mg/L	0.002	0.002	12	30%	Pass	
Zinc (filtered)	M19-My23974	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Cyanide (total)	M19-My25542	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Cyanide (total)	M19-My25543	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M19-My25546	CP	mg/L	10	10	1.0	30%	Pass	
Magnesium	M19-My25546	CP	mg/L	6.8	6.9	1.0	30%	Pass	
Potassium	M19-My25546	CP	mg/L	3.0	3.0	1.0	30%	Pass	
Sodium	M19-My25546	CP	mg/L	11	11	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M19-My26875	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	M19-My26875	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M19-My26875	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	M19-My26875	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	M19-My28472	NCP	mg/L	0.001	0.001	2.0	30%	Pass	
Mercury	M19-My26875	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	M19-My26875	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc	M19-My26875	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
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference
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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eurofins | mgt

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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 2019
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	pH	TDS	TSS							
1	GASW_BH7	5/6/19	Water	X	X	X	X	X	X					X	X	X	X	X							
2	GASW_BH10			X	X	X	X	X	X					X	X	X	X	X							
3	GASW_BH11			X	X	X	X	X	X					X	X	X	X	X							
4	QC01			Please send to ALS Lab attached COC																					
5	QC02											X													
6	RB01										X														
7	Trip Blank									X															
8	Trip Spike									X															
9																									
10																									
11																									
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						
7					2				
8					2				

Laboratory Staff

Relinquished By: Terry Nham - GHD
Date & Time : 5/6/2019
Signature:

Received By: Grace Tuckwell
Date & Time : 5/6/19 3:45pm
Signature: Tuckwell

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☑
5 DAY ☐ 10 DAY ☐ Other: 3 DAY TAT

Method Of Shipment

☐ Courier
☑ Hand Delivered
☐ Postal
Courier Consignment # :

Temperature on arrival: 3.20

Report number: 659250

Melbourne
6 Monterey Road
Dandenong South Vic 3175
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Site # 1254 & 14271

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NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**GHD Pty Ltd NSW**
Contact name:	Henry Luo
Project name:	CENTRAL
Project ID:	21-27234
COC number:	Not provided
Turn around time:	3 Day
Date/Time received:	Jun 5, 2019 3:45 PM
Eurofins | mgt reference:	**659250**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 3.2 degrees Celsius.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☑ Sample containers for volatile analysis received with zero headspace.

☑ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

Sample QC01 sent to ALS.

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8415 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Henry Luo - henry.luo@ghd.com.

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 **659250-W-V2**
Project name CENTRAL
Project ID 21-27234
Received Date Jun 05, 2019

Client Sample ID			**GASW_BH7**	**GASW_BH10**	**GASW_BH11**	**QC02**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Jn03368**	**S19-Jn03369**	**S19-Jn03370**	**S19-Jn03371**
Date Sampled			**Jun 05, 2019**	**Jun 05, 2019**	**Jun 05, 2019**	**Jun 05, 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	0.63	< 0.05	0.16	0.22
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	0.63	< 0.05	0.16	0.22
TRH >C16-C34	0.1	mg/L	0.4	< 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	1.03	< 0.1	0.16	0.22
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	0.40	< 0.05	0.11	0.12
TRH C15-C28	0.1	mg/L	0.7	< 0.1	0.1	0.2
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	1.1	< 0.1	0.21	0.32
BTEX						
Benzene	0.001	mg/L	0.001	0.002	< 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	%	74	85	77	82
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			GASW_BH7	GASW_BH10	GASW_BH11	QC02
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn03368	S19-Jn03369	S19-Jn03370	S19-Jn03371
Date Sampled			Jun 05, 2019	Jun 05, 2019	Jun 05, 2019	Jun 05, 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	%	INT	81	78	68
p-Terphenyl-d14 (surr.)	1	%	53	93	90	94
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	-
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	%	112	109	140	-
Tetrachloro-m-xylene (surr.)	1	%	70	96	83	-
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	-

Client Sample ID			GASW_BH7	GASW_BH10	GASW_BH11	QC02
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn03368	S19-Jn03369	S19-Jn03370	S19-Jn03371
Date Sampled			Jun 05, 2019	Jun 05, 2019	Jun 05, 2019	Jun 05, 2019
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
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	< 0.005	< 0.002	< 0.005	-
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	-
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	%	53	90	92	-
Polychlorinated Biphenyls						
Aroclor-1016	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Aroclor-1232	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Aroclor-1242	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Aroclor-1248	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Aroclor-1254	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Aroclor-1260	0.005	mg/L	< 0.005	< 0.005	< 0.005	-
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Dibutylchlorendate (surr.)	1	%	112	109	140	-
Tetrachloro-m-xylene (surr.)	1	%	70	96	83	-
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	-

Client Sample ID			GASW_BH7	GASW_BH10	GASW_BH11	QC02
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn03368	S19-Jn03369	S19-Jn03370	S19-Jn03371
Date Sampled			Jun 05, 2019	Jun 05, 2019	Jun 05, 2019	Jun 05, 2019
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
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	%	23	45	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	-
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	-
TRH - 1999 NEPM Fractions (after silica gel clean-up)						
TRH C10-C36 (Total) (after silica gel clean-up)	0.4	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	0.02	< 0.01	-
Chloride	1	mg/L	38	150	43	-
Cyanide (total)	0.005	mg/L	< 0.005	0.005	0.013	-
Ferrous Iron - Fe2+	0.5	mg/L	5.4	< 0.5	2.5	-
pH (at 25°C)	0.1	pH Units	5.6	7.8	6.1	-
Sulphate (as SO4)	2	mg/L	140	42	42	-
Total Dissolved Solids Dried at 180°C ± 2°C	5	mg/L	310	560	210	-
Total Suspended Solids Dried at 103–105°C	5	mg/L	28	84	300	-
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	35	310	71	-
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	-
Hydroxide Alkalinity (as CaCO3)	20	mg/L	< 20	< 20	< 20	-
Total Alkalinity (as CaCO3)	20	mg/L	35	310	71	-
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	0.002	< 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	< 0.001	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.30	0.049	0.20	-
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.002	0.007	0.002	0.002
Zinc (filtered)	0.005	mg/L	0.039	< 0.005	0.022	0.022
Alkali Metals						
Calcium	0.5	mg/L	27	44	5.1	-
Magnesium	0.5	mg/L	5.1	34	8.0	-
Potassium	0.5	mg/L	1.2	18	2.7	-
Sodium	0.5	mg/L	61	130	57	-

Client Sample ID			RB01	TRIP BLANK	[R20]TRIP SPIKE
Sample Matrix			Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn03372	S19-Jn03373	S19-Jn03374
Date Sampled			Jun 05, 2019	Jun 05, 2019	Jun 05, 2019
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	72
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	71
BTEX					
Benzene	0.001	mg/L	-	< 0.001	93
Toluene	0.001	mg/L	-	< 0.001	95
Ethylbenzene	0.001	mg/L	-	< 0.001	98
m&p-Xylenes	0.002	mg/L	-	< 0.002	95
o-Xylene	0.001	mg/L	-	< 0.001	98
Xylenes - Total	0.003	mg/L	-	< 0.003	96
4-Bromofluorobenzene (surr.)	1	%	-	71	78
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	Sydney	Jun 05, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Sydney	Jun 05, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Jun 05, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Jun 05, 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	Sydney	Jun 05, 2019	
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Jun 05, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Sydney	Jun 05, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Sydney	Jun 05, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8 filtered	Sydney	Jun 21, 2019	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Organochlorine Pesticides	Sydney	Jun 05, 2019	7 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	Jun 05, 2019	7 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	Jun 05, 2019	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
TRH - 2013 NEPM Fractions (after silica gel clean-up)	Sydney	Jun 05, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
TRH - 1999 NEPM Fractions (after silica gel clean-up)	Sydney	Jun 05, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Ammonia (as N)	Sydney	Jun 05, 2019	28 Day
- Method: LTM-INO-4200 Ammonia by Discrete Analyser			
Cyanide (total)	Sydney	Jun 05, 2019	14 Day
- Method: E054 Total Cyanide			
Ferrous Iron - Fe2+	Sydney	Jun 05, 2019	7 Days
- Method: LTM-INO-4190 Ferrous Iron in Water by Discrete Analyser			
pH (at 25°C)	Sydney	Jun 05, 2019	1 Day
- Method: LTM-GEN-7090 pH in water by ISE			
Total Dissolved Solids Dried at 180°C ± 2°C	Sydney	Jun 05, 2019	7 Day
- Method: LTM-INO-4170 Total Dissolved Solids in Water			
Total Suspended Solids Dried at 103–105°C	Sydney	Jun 05, 2019	7 Days
- Method: LTM-INO-4070 Analysis of Suspended Solids in Water by Gravimetry			
Metals M8	Sydney	Jun 11, 2019	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Heavy Metals (filtered)	Sydney	Jun 05, 2019	180 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins | mgt Suite B11C: Na/K/Ca/Mg	Sydney	Jun 11, 2019	180 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins | mgt Suite B11E: Cl/SO4/Alkalinity			
Chloride	Sydney	Jun 05, 2019	28 Day
- Method: E045 /E047 Chloride			

Description	Testing Site	Extracted	Holding Time
Sulphate (as SO4)	Sydney	Jun 05, 2019	28 Day
- Method: E045 Anions by Ion Chromatography			
Alkalinity (speciated)	Melbourne	Jun 06, 2019	14 Day
- Method: LTM-INO-4250 Alkalinity by Electrometric Titration			

eurofins | mgt

ABN – 50 005 085 521
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Project Name: CENTRAL
Project ID: 21-27234

Order No.:
Report #: 659250
Phone: 02 9239 7100
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Received: Jun 5, 2019 3:45 PM
Due: Jun 11, 2019
Priority: 3 Day
Contact Name: Henry Luo

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Ammonia (as N)	Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	pH (at 25°C)	Total Dissolved Solids Dried at 180°C ± 2°C	Total Suspended Solids Dried at 103–105°C	Metals M8	Eurofins | mgt Suite B15	TRH (after Silica Gel cleanup)	Eurofins | mgt Suite B7 (filtered metals)	Eurofins | mgt Suite B7A (filtered metals)	BTEXN and Volatile TRH	Eurofins | mgt Suite B11E: Cl/SO4/Alkalinity	Eurofins | mgt Suite B11C: Na/K/Ca/Mg
Melbourne Laboratory - NATA Site # 1254 & 14271																			X	
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																				
Perth Laboratory - NATA Site # 23736																				
External Laboratory																				
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**															
1	GASW_BH7	Jun 05, 2019		Water	S19-Jn03368	X	X	X	X	X	X	X		X	X		X		X	X
2	GASW_BH10	Jun 05, 2019		Water	S19-Jn03369	X	X	X	X	X	X	X		X	X		X		X	X
3	GASW_BH11	Jun 05, 2019		Water	S19-Jn03370	X	X	X	X	X	X	X		X	X		X		X	X
4	QC02	Jun 05, 2019		Water	S19-Jn03371											X				
5	RB01	Jun 05, 2019		Water	S19-Jn03372								X							
6	TRIP BLANK	Jun 05, 2019		Water	S19-Jn03373													X		
7	TRIP SPIKE	Jun 05, 2019		Water	S19-Jn03374													X		
Test Counts						3	3	3	3	3	3	3	1	3	3	1	3	2	3	3

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure, 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	
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	< 0.005			0.005	Pass	
Aroclor-1221	mg/L	< 0.001			0.001	Pass	
Aroclor-1232	mg/L	< 0.005			0.005	Pass	
Aroclor-1242	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1248	mg/L	< 0.005			0.005	Pass	
Aroclor-1254	mg/L	< 0.005			0.005	Pass	
Aroclor-1260	mg/L	< 0.005			0.005	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	< 0.5			0.5	Pass	
Sulphate (as SO4)	mg/L	< 2			2	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	mg/L	< 5			5	Pass	
Total Suspended Solids Dried at 103–105°C	mg/L	< 5			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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	
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	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	115			70-130	Pass	
Naphthalene	%	115			70-130	Pass	
TRH C6-C10	%	102			70-130	Pass	
TRH C6-C10	%	102			70-130	Pass	
TRH >C10-C16	%	74			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	101			70-130	Pass	
TRH C10-C14	%	78			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	112			70-130	Pass	
Toluene	%	112			70-130	Pass	
Ethylbenzene	%	114			70-130	Pass	
m&p-Xylenes	%	113			70-130	Pass	
o-Xylene	%	114			70-130	Pass	
Xylenes - Total	%	113			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	71			70-130	Pass	
Acenaphthylene	%	78			70-130	Pass	
Anthracene	%	83			70-130	Pass	
Benz(a)anthracene	%	87			70-130	Pass	
Benzo(a)pyrene	%	91			70-130	Pass	
Benzo(b&j)fluoranthene	%	87			70-130	Pass	
Benzo(g.h.i)perylene	%	80			70-130	Pass	
Benzo(k)fluoranthene	%	88			70-130	Pass	
Chrysene	%	85			70-130	Pass	
Dibenz(a.h)anthracene	%	91			70-130	Pass	
Fluoranthene	%	91			70-130	Pass	
Fluorene	%	80			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	86			70-130	Pass	
Naphthalene	%	70			70-130	Pass	
Phenanthrene	%	84			70-130	Pass	
Pyrene	%	91			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDD	%	80			70-130	Pass	
4.4'-DDE	%	79			70-130	Pass	
4.4'-DDT	%	86			70-130	Pass	
a-BHC	%	70			70-130	Pass	
Aldrin	%	74			70-130	Pass	
b-BHC	%	73			70-130	Pass	
d-BHC	%	77			70-130	Pass	
Dieldrin	%	81			70-130	Pass	
Endosulfan I	%	81			70-130	Pass	
Endosulfan II	%	79			70-130	Pass	
Endosulfan sulphate	%	73			70-130	Pass	
Endrin	%	70			70-130	Pass	
Endrin aldehyde	%	71			70-130	Pass	
Endrin ketone	%	77			70-130	Pass	
g-BHC (Lindane)	%	73			70-130	Pass	
Heptachlor	%	71			70-130	Pass	
Heptachlor epoxide	%	81			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	94			70-130	Pass	
Dimethoate	%	92			70-130	Pass	
Ethion	%	103			70-130	Pass	
Fenitrothion	%	73			70-130	Pass	
Methyl parathion	%	109			70-130	Pass	
Mevinphos	%	112			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	71			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	83			30-130	Pass	
2.4-Dichlorophenol	%	84			30-130	Pass	
2.4.5-Trichlorophenol	%	98			30-130	Pass	
2.4.6-Trichlorophenol	%	96			30-130	Pass	
2.6-Dichlorophenol	%	85			30-130	Pass	
4-Chloro-3-methylphenol	%	95			30-130	Pass	
Pentachlorophenol	%	92			30-130	Pass	
Tetrachlorophenols - Total	%	92			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	101			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	86			30-130	Pass	
2-Methylphenol (o-Cresol)	%	75			30-130	Pass	
2-Nitrophenol	%	85			30-130	Pass	
2.4-Dimethylphenol	%	68			30-130	Pass	
2.4-Dinitrophenol	%	31			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	79			30-130	Pass	
4-Nitrophenol	%	49			30-130	Pass	
Dinoseb	%	99			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)	%	70			70-130	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	%	74			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	114			70-130	Pass	
Chloride	%	111			70-130	Pass	
Cyanide (total)	%	104			70-130	Pass	
Ferrous Iron - Fe2+	%	122			70-130	Pass	
Sulphate (as SO4)	%	99			70-130	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	%	89			70-130	Pass	
Total Suspended Solids Dried at 103–105°C	%	77			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO3)	%	92			70-130	Pass	
Total Alkalinity (as CaCO3)	%	98			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	96			70-130	Pass	
Arsenic (filtered)	%	105			70-130	Pass	
Cadmium	%	97			70-130	Pass	
Cadmium (filtered)	%	97			70-130	Pass	
Chromium	%	94			70-130	Pass	
Chromium (filtered)	%	103			70-130	Pass	
Copper	%	94			70-130	Pass	
Copper (filtered)	%	102			70-130	Pass	
Lead	%	92			70-130	Pass	
Lead (filtered)	%	101			70-130	Pass	
Manganese (filtered)	%	95			70-130	Pass	
Mercury	%	87			70-130	Pass	
Mercury (filtered)	%	101			70-130	Pass	
Nickel	%	96			70-130	Pass	
Nickel (filtered)	%	104			70-130	Pass	
Zinc	%	96			70-130	Pass	
Zinc (filtered)	%	102			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	106			70-130	Pass	
Magnesium	%	102			70-130	Pass	
Potassium	%	100			70-130	Pass	
Sodium	%	105			70-130	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	S19-Jn04009	NCP	%	101			70-130	Pass	
Naphthalene	S19-Jn04009	NCP	%	101			70-130	Pass	
TRH C6-C10	S19-Jn04009	NCP	%	103			70-130	Pass	
TRH C6-C10	S19-Jn04009	NCP	%	103			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S19-Jn04009	NCP	%	103			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S19-Jn04009	NCP	%	108			70-130	Pass	
Toluene	S19-Jn04009	NCP	%	110			70-130	Pass	
Ethylbenzene	S19-Jn04009	NCP	%	112			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
m&p-Xylenes	S19-Jn04009	NCP	%	113			70-130	Pass	
o-Xylene	S19-Jn04009	NCP	%	112			70-130	Pass	
Xylenes - Total	S19-Jn04009	NCP	%	112			70-130	Pass	
Spike - % Recovery									
Alkalinity (speciated)				Result 1					
Carbonate Alkalinity (as CaCO3)	M19-Jn00708	NCP	%	107			70-130	Pass	
Total Alkalinity (as CaCO3)	M19-Jn00708	NCP	%	122			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S19-Jn03363	NCP	%	106			70-130	Pass	
Cadmium (filtered)	S19-Jn03363	NCP	%	96			70-130	Pass	
Chromium (filtered)	S19-Jn03363	NCP	%	98			70-130	Pass	
Copper (filtered)	S19-Jn03363	NCP	%	97			70-130	Pass	
Lead (filtered)	S19-Jn03363	NCP	%	93			70-130	Pass	
Manganese (filtered)	S19-Jn03363	NCP	%	114			70-130	Pass	
Mercury (filtered)	S19-Jn03363	NCP	%	93			70-130	Pass	
Nickel (filtered)	S19-Jn03363	NCP	%	96			70-130	Pass	
Zinc (filtered)	S19-Jn03363	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	S19-Jn04472	NCP	%	104			70-130	Pass	
Magnesium	S19-Jn04472	NCP	%	99			70-130	Pass	
Potassium	S19-Jn04472	NCP	%	97			70-130	Pass	
Sodium	S19-Jn04472	NCP	%	100			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chloride	S19-Jn03369	CP	%	91			70-130	Pass	
Ferrous Iron - Fe2+	S19-Jn03369	CP	%	102			70-130	Pass	
Sulphate (as SO4)	S19-Jn03369	CP	%	89			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S19-Jn04472	NCP	%	103			70-130	Pass	
Cadmium	S19-Jn04472	NCP	%	101			70-130	Pass	
Chromium	S19-Jn04472	NCP	%	97			70-130	Pass	
Copper	S19-Jn04472	NCP	%	96			70-130	Pass	
Lead	S19-Jn04472	NCP	%	97			70-130	Pass	
Mercury	S19-Jn04472	NCP	%	96			70-130	Pass	
Nickel	S19-Jn04472	NCP	%	97			70-130	Pass	
Zinc	S19-Jn04472	NCP	%	96			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S19-Jn04008	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S19-Jn04008	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S19-Jn04008	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S19-Jn04008	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S19-Jn04008	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S19-Jn04008	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	S19-Jn04008	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
Chloride	S19-Jn03368	CP	mg/L	38	38	<1	30%	Pass	
Cyanide (total)	S19-My49859	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Ferrous Iron - Fe2+	S19-Jn03368	CP	mg/L	5.4	5.3	1.0	30%	Pass	
Sulphate (as SO4)	S19-Jn03368	CP	mg/L	140	140	2.0	30%	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	S19-Jn03368	CP	mg/L	310	290	7.4	30%	Pass	
Total Suspended Solids Dried at 103–105°C	S19-Jn02547	NCP	mg/L	26	29	9.5	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M19-Jn00202	NCP	mg/L	830	830	<1	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M19-Jn00202	NCP	mg/L	< 10	< 10	<1	30%	Pass	
Hydroxide Alkalinity (as CaCO3)	M19-Jn00202	NCP	mg/L	< 20	< 20	<1	30%	Pass	
Total Alkalinity (as CaCO3)	M19-Jn00202	NCP	mg/L	830	830	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S19-Jn03368	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Arsenic (filtered)	S19-Jn03368	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	S19-Jn03368	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Cadmium (filtered)	S19-Jn03368	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	S19-Jn03368	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chromium (filtered)	S19-Jn03368	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	S19-Jn03368	CP	mg/L	0.004	0.004	1.0	30%	Pass	
Copper (filtered)	S19-Jn03368	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	S19-Jn03368	CP	mg/L	0.003	0.003	2.0	30%	Pass	
Lead (filtered)	S19-Jn03368	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	S19-Jn03368	CP	mg/L	0.30	0.30	1.0	30%	Pass	
Mercury	S19-Jn03368	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Mercury (filtered)	S19-Jn03368	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	S19-Jn03368	CP	mg/L	0.002	0.002	2.0	30%	Pass	
Nickel (filtered)	S19-Jn03368	CP	mg/L	0.002	0.002	4.0	30%	Pass	
Zinc	S19-Jn03368	CP	mg/L	0.050	0.049	4.0	30%	Pass	
Zinc (filtered)	S19-Jn03368	CP	mg/L	0.039	0.040	2.0	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	S19-Jn03368	CP	mg/L	27	29	7.0	30%	Pass	
Magnesium	S19-Jn03368	CP	mg/L	5.1	5.8	13	30%	Pass	
Potassium	S19-Jn03368	CP	mg/L	1.2	1.4	12	30%	Pass	
Sodium	S19-Jn03368	CP	mg/L	61	70	14	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S19-Jn03371	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	S19-Jn03371	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S19-Jn03371	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S19-Jn03371	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	S19-Jn03371	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	S19-Jn03371	CP	mg/L	0.18	0.19	1.0	30%	Pass	
Mercury (filtered)	S19-Jn03371	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S19-Jn03371	CP	mg/L	0.002	0.002	7.0	30%	Pass	
Zinc (filtered)	S19-Jn03371	CP	mg/L	0.022	0.022	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S19-Jn04011	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	S19-Jn04011	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	S19-Jn04011	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	S19-Jn04011	NCP	mg/L	0.001	0.001	16	30%	Pass	
Lead	S19-Jn04011	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	S19-Jn04011	NCP	mg/L	< 0.0001	0.0001	<1	30%	Pass	
Nickel	S19-Jn04011	NCP	mg/L	0.002	0.002	<1	30%	Pass	
Zinc	S19-Jn04011	NCP	mg/L	0.005	0.006	11	30%	Pass	

Comments

This report has been revised (V2) to report metals results as filtered for sample S19-Jn03371.

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
Andrew Sullivan	Senior Analyst-Organic (NSW)
Gabriele Cordero	Senior Analyst-Inorganic (NSW)
Gabriele Cordero	Senior Analyst-Metal (NSW)
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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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	**Contact Name :** Terry Nham	**Purchase Order :**	**COC Number :**
Office Address :	**Project Manager :** Henry Luo	**PROJECT Number :** 21-27234	**Eurofins | mgt quote ID :** GHD Rates 2019
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:

	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	pH	TDS	TSS
1	CSM_BH02	6/6/19	Water	X	X	X	X	X	X				X	X	X		
2	CSM_BH04	11/6/19	Water	X	X	X	X	X	X				X	X	X		
3	CSM_BH05	11/6/19	Water	X	X	X	X	X	X				X	X	X		
4	CSM_BH06	6/6/19	Water	X	X	X	X	X	X				X	X	X		
5	CSM_BH08	6/6/19	Water	X	X	X	X	X	X				X	X	X		
6	CSM_BH09S	11/6/19	Water	X	X	X	X	X	X				X	X	X		
7	CSM_BH10S	11/6/19	Water	X	X	X	X	X	X				X	X	X		
8	SRT_BH047	7/6/19	Water	X	X	X	X	X	X				X	X	X		
9	SRT_BH052	7/6/19	Water	X	X	X	X	X	X				X	X	X		
10	SRT_BH059	7/6/19	Water	X	X	X	X	X	X				X	X	X		
11	SRT_BH063	7/6/19	Water	X	X	X	X	X	X				X	X	X		
12	SRT_CBH015	7/6/19	Water	X	X	X	X	X	X				X	X	X		
13	SRT_CBH017	7/6/19	Water	X	X	X	X	X	X				X	X	X		
14	QC03	6/6/19	Water	PLEASE SEND TO ALS WITH ATTACHED COC													
15	QC04	6/6/19	Water									X					
16	RB02	7/6/19	Water								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	60P	1LA	40mL vial	200mL A	Jar	Bag	Sample comments:
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		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						

Laboratory Staff

Relinquished By: Terry Nham - GHD
Date & Time : 11/6/2019
Signature:

Received By:
Date & Time : 11/6
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: 11,20

Report number: 660130

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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 2019
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	pH	TDS	TSS						
1	Trip Blank	11/6/19	Water								X														
2	Trip Spike	11/6/19	Water								X														
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
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
				2			
				2			

Sample comments:

Laboratory Staff

Relinquished By: Terry Nham - GHD
Date & Time : 11/6/2019
Signature:

Received By:
Date & Time : 11/6
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: 11.20

Report number: 660130

Enviro Sample NSW

From: Terry Nham <Terry.Nham@ghd.com>
Sent: Wednesday, 12 June 2019 10:10 AM
To: Enviro Sample NSW
Subject: RE: Eurofins | mgt Sample Receipt Advice - Report 660130 : Site CENTRAL (21-27234)

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Grace,
Thanks for sending through the SRA!

Just realised that I forgot to tick TDS and TSS for the first 13 samples on the COC (ie: all the main primary samples).

Would you be able add this to the analysis?

Regards,

Terry

Terry Nham
Environmental Scientist
Contamination Assessment and Remediation

GHD
T: 61 2 9239 7393 | F: 61 2 9239 7199 | V: 217393 | M: 0403 251 883 | E: terry.nham@ghd.com
Level 15, 133 Castlereagh St Sydney NSW 2000 Australia | http://www.ghd.com/
Water | Energy & Resources | Environment | Property & Buildings | Transportation

Please consider the environment before printing this email

From: EnviroSampleNSW@eurofins.com <EnviroSampleNSW@eurofins.com>
Sent: Wednesday, 12 June 2019 9:00 AM
To: Henry Luo <Henry.Luo@ghd.com>
Cc: Terry Nham <Terry.Nham@ghd.com>
Subject: Eurofins | mgt Sample Receipt Advice - Report 660130 : Site CENTRAL (21-27234)

Dear Valued Client,

Sample QC03 sent to ALS.
Please find attached a Sample Receipt Advice (SRA), a Summary Sheet and a scanned copy of your Chain-of-Custody (COC). It is important that you check this documentation to ensure that the details are correct such as the Client Job Number, Turn Around Time, any comments in the Notes section and sample numbers as well as the requested analysis. If there are any irregularities then please contact your Eurofins | mgt Analytical Services Manager as soon as possible to make certain that they get changed.

Regards

Grace Tuckwell
Sample Receipt

Eurofins | mgt
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AUSTRALIA
Phone: +61 29900 8421
Email: EnviroSampleNSW@eurofins.com
Website:environment.eurofins.com.au

EnviroNote 1079 - PFAS Fingerprinting
EnviroNote 1080 - Total Organofluorine Analysis & PFAS Investigations

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Sample Receipt Advice

Company name:	**GHD Pty Ltd NSW**
Contact name:	Henry Luo
Project name:	CENTRAL
Project ID:	21-27234
COC number:	Not provided
Turn around time:	7 Day
Date/Time received:	Jun 11, 2019 3:01 PM
Eurofins | mgt reference:	**660130**

Sample information

- ☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 11.2 degrees Celsius.
- ☑ All samples have been received as described on the above COC.
- ☑ COC has been completed correctly.
- ☑ Attempt to chill was evident.
- ☑ Appropriately preserved sample containers have been used.
- ☑ All samples were received in good condition.
- ☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☑ Appropriate sample containers have been used.
- ☑ Sample containers for volatile analysis received with zero headspace.
- ☒ Split sample sent to requested external lab.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Sample QC03 sent to ALS.

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8415 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Henry Luo - henry.luo@ghd.com.

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





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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 **660130-W**
Project name CENTRAL
Project ID 21-27234
Received Date Jun 11, 2019

Client Sample ID			**CSM_BH02**	**CSM_BH04**	**CSM_BH05**	**CSM_BH06**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Jn10723**	**S19-Jn10724**	**S19-Jn10725**	**S19-Jn10726**
Date Sampled			**Jun 06, 2019**	**Jun 11, 2019**	**Jun 11, 2019**	**Jun 06, 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	0.06	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	0.06	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	0.2	0.2	< 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	0.36	0.2	< 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	0.06	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	0.2	0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	0.2	0.1	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	0.46	0.2	< 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	%	107	107	103	118
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			CSM_BH02	CSM_BH04	CSM_BH05	CSM_BH06
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn10723	S19-Jn10724	S19-Jn10725	S19-Jn10726
Date Sampled			Jun 06, 2019	Jun 11, 2019	Jun 11, 2019	Jun 06, 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	%	121	123	91	74
p-Terphenyl-d14 (surr.)	1	%	116	115	79	65
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	%	94	147	INT	111
Tetrachloro-m-xylene (surr.)	1	%	60	85	107	58
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			CSM_BH02	CSM_BH04	CSM_BH05	CSM_BH06
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn10723	S19-Jn10724	S19-Jn10725	S19-Jn10726
Date Sampled			Jun 06, 2019	Jun 11, 2019	Jun 11, 2019	Jun 06, 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	%	74	73	58	46
Polychlorinated Biphenyls						
Aroclor-1016	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1242	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1248	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1254	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1260	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	94	147	INT	111
Tetrachloro-m-xylene (surr.)	1	%	60	85	107	58
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			CSM_BH02	CSM_BH04	CSM_BH05	CSM_BH06
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn10723	S19-Jn10724	S19-Jn10725	S19-Jn10726
Date Sampled			Jun 06, 2019	Jun 11, 2019	Jun 11, 2019	Jun 06, 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	%	38	43	33	24
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)	0.4	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	0.04	< 0.01	< 0.01	0.08
Chloride	1	mg/L	150	63	220	210
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.5	mg/L	0.9	7.7	< 0.5	2.9
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	0.03
pH (at 25°C)	0.1	pH Units	7.8	6.7	7.4	7.2
Sulphate (as SO4)	5	mg/L	35	56	50	27
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	470	200	520	490
Total Suspended Solids Dried at 103–105°C	1	mg/L	970	2700	110	240
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	290	86	240	190
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	48	4.5	44	43
Magnesium	0.5	mg/L	36	11	39	34
Potassium	0.5	mg/L	6.6	2.4	8.0	6.8
Sodium	0.5	mg/L	110	69	150	120
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.001	< 0.001	< 0.001	0.004
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	< 0.001	0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.33	0.44	0.44	0.28
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.009	0.023	0.005	0.020
Zinc (filtered)	0.005	mg/L	0.016	0.051	0.023	0.050

Client Sample ID			CSM_BH08	CSM_BH09S	CSM_BH010S	SRT_BH047
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn10727	S19-Jn10728	S19-Jn10729	S19-Jn10730
Date Sampled			Jun 06, 2019	Jun 11, 2019	Jun 11, 2019	Jun 07, 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	%	111	111	109	115
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	%	80	79	79	89
p-Terphenyl-d14 (surr.)	1	%	72	77	74	84
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			CSM_BH08	CSM_BH09S	CSM_BH010S	SRT_BH047
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn10727	S19-Jn10728	S19-Jn10729	S19-Jn10730
Date Sampled			Jun 06, 2019	Jun 11, 2019	Jun 11, 2019	Jun 07, 2019
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	%	67	143	78	115
Tetrachloro-m-xylene (surr.)	1	%	INT	75	INT	77
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			CSM_BH08	CSM_BH09S	CSM_BH010S	SRT_BH047
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn10727	S19-Jn10728	S19-Jn10729	S19-Jn10730
Date Sampled			Jun 06, 2019	Jun 11, 2019	Jun 11, 2019	Jun 07, 2019
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	%	51	54	51	59
Polychlorinated Biphenyls						
Aroclor-1016	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1242	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1248	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1254	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1260	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	67	143	78	115
Tetrachloro-m-xylene (surr.)	1	%	INT	75	INT	77
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	%	30	28	28	38
Ammonia (as N)	0.01	mg/L	< 0.01	0.10	0.06	< 0.01
Chloride	1	mg/L	90	72	37	26
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.5	mg/L	3.5	3.4	< 0.5	< 0.5
Nitrate (as N)	0.02	mg/L	< 0.02	0.31	2.3	23
pH (at 25°C)	0.1	pH Units	7.2	6.6	5.9	8.0

Client Sample ID			CSM_BH08	CSM_BH09S	CSM_BH010S	SRT_BH047
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn10727	S19-Jn10728	S19-Jn10729	S19-Jn10730
Date Sampled			Jun 06, 2019	Jun 11, 2019	Jun 11, 2019	Jun 07, 2019
Test/Reference	LOR	Unit				
Sulphate (as SO4)	5	mg/L	42	210	66	11
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	250	390	140	230
Total Suspended Solids Dried at 103–105°C	1	mg/L	73	46	210	48
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	110	66	< 20	98
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	49	12	3.7	37
Magnesium	0.5	mg/L	28	8.7	6.1	10
Potassium	0.5	mg/L	11	7.2	4.8	1.1
Sodium	0.5	mg/L	71	130	42	35
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	< 0.001	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.37	0.78	0.49	< 0.005
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.006	0.009	0.001	< 0.001
Zinc (filtered)	0.005	mg/L	0.041	0.054	0.006	< 0.005

Client Sample ID			SRT_BH052	SRT_BH059	SRT_BH063	SRT_CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn10731	S19-Jn10732	S19-Jn10733	S19-Jn10734
Date Sampled			Jun 07, 2019	Jun 07, 2019	Jun 07, 2019	Jun 07, 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

Client Sample ID			SRT_BH052	SRT_BH059	SRT_BH063	SRT_CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn10731	S19-Jn10732	S19-Jn10733	S19-Jn10734
Date Sampled			Jun 07, 2019	Jun 07, 2019	Jun 07, 2019	Jun 07, 2019
Test/Reference	LOR	Unit				
BTEX						
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	%	98	99	96	105
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	%	95	83	114	80
p-Terphenyl-d14 (surr.)	1	%	76	76	97	76
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

Client Sample ID			SRT_BH052	SRT_BH059	SRT_BH063	SRT_CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn10731	S19-Jn10732	S19-Jn10733	S19-Jn10734
Date Sampled			Jun 07, 2019	Jun 07, 2019	Jun 07, 2019	Jun 07, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Dibutylchlorendate (surr.)	1	%	105	111	108	79
Tetrachloro-m-xylene (surr.)	1	%	92	63	66	INT
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	%	58	52	74	49
Polychlorinated Biphenyls						
Aroclor-1016	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1221	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Aroclor-1232	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1242	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1248	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1254	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aroclor-1260	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Total PCB*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibutylchlorendate (surr.)	1	%	105	111	108	79
Tetrachloro-m-xylene (surr.)	1	%	92	63	66	INT

Client Sample ID			SRT_BH052	SRT_BH059	SRT_BH063	SRT_CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn10731	S19-Jn10732	S19-Jn10733	S19-Jn10734
Date Sampled			Jun 07, 2019	Jun 07, 2019	Jun 07, 2019	Jun 07, 2019
Test/Reference	LOR	Unit				
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	%	32	27	40	29
Ammonia (as N)	0.01	mg/L	< 0.01	< 0.01	< 0.01	0.03
Chloride	1	mg/L	39	18	77	29
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.5	mg/L	< 0.5	< 0.5	< 0.5	< 0.5
Nitrate (as N)	0.02	mg/L	6.4	5.2	0.40	3.3
pH (at 25°C)	0.1	pH Units	8.1	7.7	7.4	6.1
Sulphate (as SO4)	5	mg/L	29	18	48	47
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	250	230	360	96
Total Suspended Solids Dried at 103–105°C	1	mg/L	550	8.9	41	1.6
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	140	210	310	26
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	37	72	55	2.2
Magnesium	0.5	mg/L	6.9	7.4	30	4.8
Potassium	0.5	mg/L	1.3	9.0	6.8	3.3
Sodium	0.5	mg/L	48	13	71	27
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	< 0.001	0.002	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	7.5
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	< 0.001	0.006	0.010
Zinc (filtered)	0.005	mg/L	< 0.005	< 0.005	0.036	0.027

Client Sample ID			SRT_CBH017	QC04	RB02	TRIP BLANK
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn10735	S19-Jn10736	S19-Jn10737	S19-Jn10738
Date Sampled			Jun 07, 2019	Jun 08, 2019	Jun 08, 2019	Jun 08, 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	-	-
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	-	< 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	-	< 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	%	121	97	-	109
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	0.002	-	-
2-Fluorobiphenyl (surr.)	1	%	82	140	-	-
p-Terphenyl-d14 (surr.)	1	%	62	105	-	-
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	-	-	-

Client Sample ID			SRT_CBH017	QC04	RB02	TRIP BLANK
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn10735	S19-Jn10736	S19-Jn10737	S19-Jn10738
Date Sampled			Jun 07, 2019	Jun 08, 2019	Jun 08, 2019	Jun 08, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
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	-	-	-
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	%	88	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	54	-	-	-
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	-	-	-

Client Sample ID			SRT_CBH017	QC04	RB02	TRIP BLANK
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Jn10735	S19-Jn10736	S19-Jn10737	S19-Jn10738
Date Sampled			Jun 07, 2019	Jun 08, 2019	Jun 08, 2019	Jun 08, 2019
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
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	%	50	-	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.005	mg/L	< 0.005	-	-	-
Aroclor-1221	0.001	mg/L	< 0.001	-	-	-
Aroclor-1232	0.005	mg/L	< 0.005	-	-	-
Aroclor-1242	0.005	mg/L	< 0.005	-	-	-
Aroclor-1248	0.005	mg/L	< 0.005	-	-	-
Aroclor-1254	0.005	mg/L	< 0.005	-	-	-
Aroclor-1260	0.005	mg/L	< 0.005	-	-	-
Total PCB*	0.001	mg/L	< 0.001	-	-	-
Dibutylchlorendate (surr.)	1	%	88	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	54	-	-	-
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	%	28	-	-	-
Ammonia (as N)	0.01	mg/L	0.03	-	-	-
Chloride	1	mg/L	12	-	-	-
Cyanide (total)	0.005	mg/L	< 0.005	-	-	-
Ferrous Iron - Fe2+	0.5	mg/L	< 0.5	-	-	-
Nitrate (as N)	0.02	mg/L	1.9	-	-	-
pH (at 25°C)	0.1	pH Units	6.8	-	-	-

Client Sample ID			SRT_CBH017	QC04	RB02	TRIP BLANK
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Jn10735**	**S19-Jn10736**	**S19-Jn10737**	**S19-Jn10738**
Date Sampled			**Jun 07, 2019**	**Jun 08, 2019**	**Jun 08, 2019**	**Jun 08, 2019**
Test/Reference	LOR	Unit				
Sulphate (as SO4)	5	mg/L	19	-	-	-
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	81	-	-	-
Total Suspended Solids Dried at 103–105°C	1	mg/L	8.8	-	-	-
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	52	-	-	-
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	-	-	-
Alkali Metals						
Calcium	0.5	mg/L	7.1	-	-	-
Magnesium	0.5	mg/L	6.5	-	-	-
Potassium	0.5	mg/L	3.1	-	-	-
Sodium	0.5	mg/L	15	-	-	-
Heavy Metals						
Arsenic	0.001	mg/L	-	-	< 0.001	-
Arsenic (filtered)	0.001	mg/L	< 0.001	0.004	-	-
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	< 0.001	< 0.001	-	-
Lead	0.001	mg/L	-	-	< 0.001	-
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	-	-
Manganese (filtered)	0.005	mg/L	5.1	-	-	-
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	0.006	0.020	-	-
Zinc	0.005	mg/L	-	-	< 0.005	-
Zinc (filtered)	0.005	mg/L	0.017	0.052	-	-

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	Sydney	Jun 11, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Sydney	Jun 11, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Jun 11, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Jun 11, 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	Sydney	Jun 11, 2019	
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Jun 11, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Sydney	Jun 11, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Sydney	Jun 11, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8 filtered	Sydney	Jun 20, 2019	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Organochlorine Pesticides	Sydney	Jun 11, 2019	7 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	Jun 11, 2019	7 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	Jun 11, 2019	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
TRH - 2013 NEPM Fractions (after silica gel clean-up)	Sydney	Jun 11, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
TRH - 1999 NEPM Fractions (after silica gel clean-up)	Sydney	Jun 11, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Major Cations			
Ammonia (as N)	Melbourne	Jun 12, 2019	28 Day
- Method: LTM-INO-4200 Ammonia by Discrete Analyser			
Alkali Metals	Melbourne	Jun 12, 2019	180 Day
- Method: LTM-MET-3010 Alkali Metals S Si and P by ICP-AES			
Major Anions			
Chloride	Melbourne	Jun 12, 2019	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Nitrate (as N)	Melbourne	Jun 12, 2019	28 Day
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Sulphate (as SO4)	Melbourne	Jun 12, 2019	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Jun 12, 2019	14 Day
- Method: LTM-INO-4250 Alkalinity by Electrometric Titration			
Cyanide (total)	Sydney	Jun 11, 2019	14 Day
- Method: E054 Total Cyanide			
Ferrous Iron - Fe2+	Sydney	Jun 11, 2019	7 Days
- Method: LTM-INO-4190 Ferrous Iron in Water by Discrete Analyser			
pH (at 25°C)	Melbourne	Jun 12, 2019	0 Hours
- Method: LTM-GEN-7090 pH in water by ISE			
Total Dissolved Solids Dried at 180°C ± 2°C	Melbourne	Jun 12, 2019	7 Day

Description	Testing Site	Extracted	Holding Time
- Method: LTM-INO-4170 Total Dissolved Solids in Water			
Total Suspended Solids Dried at 103–105°C	Melbourne	Jun 12, 2019	7 Days
- Method: LTM-INO-4070 Analysis of Suspended Solids in Water by Gravimetry			
Metals M8	Sydney	Jun 20, 2019	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Heavy Metals (filtered)	Sydney	Jun 12, 2019	180 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

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NATA # 1261
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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 #: 660130
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Jun 11, 2019 3:01 PM
Due: Jun 20, 2019
Priority: 7 Day
Contact Name: Henry Luo

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail	CANCELLED	Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	pH (at 25°C)	Total Dissolved Solids Dried at 180°C ± 2°C	Total Suspended Solids Dried at 103–105°C	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				
Sydney Laboratory - NATA Site # 18217	X	X	X	X				X	X			X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
Perth Laboratory - NATA Site # 23736															
External Laboratory															

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID														
1	CSM_BH02	Jun 06, 2019		Water	S19-Jn10723		X	X	X	X	X	X		X	X	X	X		X	
2	CSM_BH04	Jun 11, 2019		Water	S19-Jn10724		X	X	X	X	X	X		X	X	X	X		X	
3	CSM_BH05	Jun 11, 2019		Water	S19-Jn10725		X	X	X	X	X	X		X	X	X			X	
4	CSM_BH06	Jun 06, 2019		Water	S19-Jn10726		X	X	X	X	X	X		X	X	X			X	
5	CSM_BH08	Jun 06, 2019		Water	S19-Jn10727		X	X	X	X	X	X		X	X	X			X	
6	CSM_BH09S	Jun 11, 2019		Water	S19-Jn10728		X	X	X	X	X	X		X	X	X			X	
7	CSM_BH010S	Jun 11, 2019		Water	S19-Jn10729		X	X	X	X	X	X		X	X	X			X	
8	SRT_BH047	Jun 07, 2019		Water	S19-Jn10730		X	X	X	X	X	X		X	X	X			X	
9	SRT_BH052	Jun 07, 2019		Water	S19-Jn10731		X	X	X	X	X	X		X	X	X			X	

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Sample Detail						CANCELLED	Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	pH (at 25°C)	Total Dissolved Solids Dried at 180°C ± 2°C	Total Suspended Solids Dried at 103–105°C	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				
Sydney Laboratory - NATA Site # 18217						X	X	X	X				X	X			X	X	X	X
Brisbane Laboratory - NATA Site # 20794																				
Perth Laboratory - NATA Site # 23736																				
10	SRT_BH059	Jun 07, 2019		Water	S19-Jn10732		X	X	X	X	X	X		X	X	X			X	
11	SRT_BH063	Jun 07, 2019		Water	S19-Jn10733		X	X	X	X	X	X		X	X	X			X	
12	SRT_CBH015	Jun 07, 2019		Water	S19-Jn10734		X	X	X	X	X	X		X	X	X			X	
13	SRT_CBH017	Jun 07, 2019		Water	S19-Jn10735		X	X	X	X	X	X		X	X	X			X	
14	QC04	Jun 08, 2019		Water	S19-Jn10736													X		
15	RB02	Jun 08, 2019		Water	S19-Jn10737								X							
16	TRIP BLANK	Jun 08, 2019		Water	S19-Jn10738															X
17	TRIP SPIKE	Jun 08, 2019		Water	S19-Jn10739	X														
Test Counts						1	13	13	13	13	13	13	1	13	13	13	2	1	13	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure, 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	< 0.005			0.005	Pass	
Aroclor-1221	mg/L	< 0.001			0.001	Pass	
Aroclor-1232	mg/L	< 0.005			0.005	Pass	
Aroclor-1242	mg/L	< 0.005			0.005	Pass	
Aroclor-1248	mg/L	< 0.005			0.005	Pass	
Aroclor-1254	mg/L	< 0.005			0.005	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1260	mg/L	< 0.005			0.005	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	< 0.5			0.5	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Sulphate (as SO4)	mg/L	< 5			5	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	mg/L	< 10			10	Pass	
Total Suspended Solids Dried at 103–105°C	mg/L	< 1			1	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	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	%	101			70-130	Pass	
TRH C6-C10	%	96			70-130	Pass	
TRH >C10-C16	%	74			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	97			70-130	Pass	
TRH C10-C14	%	85			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	101			70-130	Pass	
Toluene	%	96			70-130	Pass	
Ethylbenzene	%	95			70-130	Pass	
m&p-Xylenes	%	93			70-130	Pass	
o-Xylene	%	97			70-130	Pass	
Xylenes - Total	%	94			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	78			70-130	Pass	
Acenaphthylene	%	83			70-130	Pass	
Anthracene	%	89			70-130	Pass	
Benz(a)anthracene	%	97			70-130	Pass	
Benzo(a)pyrene	%	97			70-130	Pass	
Benzo(b&j)fluoranthene	%	100			70-130	Pass	
Benzo(g.h.i)perylene	%	109			70-130	Pass	
Benzo(k)fluoranthene	%	94			70-130	Pass	
Chrysene	%	98			70-130	Pass	
Dibenz(a.h)anthracene	%	103			70-130	Pass	
Fluoranthene	%	92			70-130	Pass	
Fluorene	%	86			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	104			70-130	Pass	
Naphthalene	%	75			70-130	Pass	
Phenanthrene	%	91			70-130	Pass	
Pyrene	%	91			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	91			70-130	Pass	
4.4'-DDE	%	93			70-130	Pass	
4.4'-DDT	%	97			70-130	Pass	
a-BHC	%	87			70-130	Pass	
Aldrin	%	86			70-130	Pass	
b-BHC	%	89			70-130	Pass	
d-BHC	%	92			70-130	Pass	
Dieldrin	%	96			70-130	Pass	
Endosulfan I	%	95			70-130	Pass	
Endosulfan II	%	91			70-130	Pass	
Endosulfan sulphate	%	93			70-130	Pass	
Endrin	%	88			70-130	Pass	
Endrin aldehyde	%	89			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	%	96			70-130	Pass	
g-BHC (Lindane)	%	84			70-130	Pass	
Heptachlor	%	86			70-130	Pass	
Heptachlor epoxide	%	93			70-130	Pass	
Hexachlorobenzene	%	76			70-130	Pass	
Methoxychlor	%	99			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	82			70-130	Pass	
Dimethoate	%	70			70-130	Pass	
Ethion	%	79			70-130	Pass	
Fenitrothion	%	87			70-130	Pass	
Methyl parathion	%	95			70-130	Pass	
Mevinphos	%	89			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	74			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	81			30-130	Pass	
2.4-Dichlorophenol	%	88			30-130	Pass	
2.4.5-Trichlorophenol	%	93			30-130	Pass	
2.4.6-Trichlorophenol	%	91			30-130	Pass	
2.6-Dichlorophenol	%	88			30-130	Pass	
4-Chloro-3-methylphenol	%	90			30-130	Pass	
Pentachlorophenol	%	96			30-130	Pass	
Tetrachlorophenols - Total	%	94			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	103			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	87			30-130	Pass	
2-Methylphenol (o-Cresol)	%	75			30-130	Pass	
2-Nitrophenol	%	86			30-130	Pass	
2.4-Dimethylphenol	%	86			30-130	Pass	
2.4-Dinitrophenol	%	32			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	75			30-130	Pass	
4-Nitrophenol	%	42			30-130	Pass	
Dinoseb	%	101			30-130	Pass	
Phenol	%	45			30-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	99			70-130	Pass	
Chloride	%	115			70-130	Pass	
Cyanide (total)	%	97			70-130	Pass	
Ferrous Iron - Fe2+	%	102			70-130	Pass	
Nitrate (as N)	%	97			70-130	Pass	
Sulphate (as SO4)	%	123			70-130	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	%	90			70-130	Pass	
Total Suspended Solids Dried at 103–105°C	%	104			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO3)	%	96			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	108			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Magnesium	%	102			70-130	Pass	
Potassium	%	107			70-130	Pass	
Sodium	%	105			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	116			70-130	Pass	
Arsenic (filtered)	%	126			70-130	Pass	
Cadmium	%	119			70-130	Pass	
Cadmium (filtered)	%	121			70-130	Pass	
Chromium	%	123			70-130	Pass	
Chromium (filtered)	%	117			70-130	Pass	
Copper	%	122			70-130	Pass	
Copper (filtered)	%	113			70-130	Pass	
Lead	%	127			70-130	Pass	
Lead (filtered)	%	116			70-130	Pass	
Manganese (filtered)	%	117			70-130	Pass	
Mercury	%	97			70-130	Pass	
Mercury (filtered)	%	107			70-130	Pass	
Nickel	%	123			70-130	Pass	
Nickel (filtered)	%	114			70-130	Pass	
Zinc	%	117			70-130	Pass	
Zinc (filtered)	%	117			70-130	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	S19-Jn13611	NCP	%	102			70-130	Pass	
TRH C6-C10	S19-Jn13611	NCP	%	96			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S19-Jn13611	NCP	%	100			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S19-Jn13611	NCP	%	100			70-130	Pass	
Toluene	S19-Jn13611	NCP	%	102			70-130	Pass	
Ethylbenzene	S19-Jn13611	NCP	%	100			70-130	Pass	
m&p-Xylenes	S19-Jn13611	NCP	%	98			70-130	Pass	
o-Xylene	S19-Jn13611	NCP	%	101			70-130	Pass	
Xylenes - Total	S19-Jn13611	NCP	%	99			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M19-Jn12030	NCP	%	95			70-130	Pass	
Nitrate (as N)	M19-Jn12030	NCP	%	94			70-130	Pass	
Sulphate (as SO4)	M19-Jn12857	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Alkalinity (speciated)				Result 1					
Bicarbonate Alkalinity (as CaCO3)	M19-Jn10105	NCP	%	79			70-130	Pass	
Carbonate Alkalinity (as CaCO3)	M19-Jn11587	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S19-Jn14893	NCP	%	125			70-130	Pass	
Cadmium (filtered)	S19-Jn10987	NCP	%	119			70-130	Pass	
Chromium (filtered)	S19-Jn10987	NCP	%	120			70-130	Pass	
Copper (filtered)	S19-Jn10987	NCP	%	115			70-130	Pass	
Lead (filtered)	S19-Jn10987	NCP	%	112			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Manganese (filtered)	S19-Jn10987	NCP	%	120			70-130	Pass	
Mercury (filtered)	S19-Jn10987	NCP	%	98			70-130	Pass	
Nickel (filtered)	S19-Jn10987	NCP	%	116			70-130	Pass	
Zinc (filtered)	S19-Jn10987	NCP	%	98			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ferrous Iron - Fe2+	S19-Jn10724	CP	%	101			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	S19-Jn10726	CP	%	101			70-130	Pass	
Magnesium	S19-Jn10726	CP	%	99			70-130	Pass	
Potassium	S19-Jn10726	CP	%	119			70-130	Pass	
Sodium	S19-Jn10726	CP	%	100			70-130	Pass	
Spike - % Recovery									
				Result 1					
Cyanide (total)	S19-Jn10732	CP	%	84			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S19-Jn10987	NCP	%	122			70-130	Pass	
Cadmium	S19-Jn12043	NCP	%	118			70-130	Pass	
Chromium	S19-Jn12043	NCP	%	118			70-130	Pass	
Copper	S19-Jn12043	NCP	%	102			70-130	Pass	
Lead	S19-Jn12043	NCP	%	111			70-130	Pass	
Mercury	S19-Jn12043	NCP	%	89			70-130	Pass	
Nickel	S19-Jn12043	NCP	%	105			70-130	Pass	
Zinc	S19-Jn12043	NCP	%	99			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	S19-Jn23910	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S19-Jn23910	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S19-Jn23910	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S19-Jn23910	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S19-Jn23910	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S19-Jn23910	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S19-Jn23910	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S19-Jn23910	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	S19-Jn23910	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M19-Jn12030	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Chloride	B19-Jn13779	NCP	mg/L	670	620	8.0	30%	Pass	
Ferrous Iron - Fe2+	S19-Jn10723	CP	mg/L	0.9	0.9	<1	30%	Pass	
Nitrate (as N)	M19-Jn12030	NCP	mg/L	0.02	0.02	3.0	30%	Pass	
pH (at 25°C)	S19-Jn10723	CP	pH Units	7.8	7.8	pass	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	S19-Jn10723	CP	mg/L	290	300	3.0	30%	Pass	
Carbonate Alkalinity (as CaCO3)	S19-Jn10723	CP	mg/L	< 10	< 10	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S19-Jn10723	CP	mg/L	0.001	0.001	<1	30%	Pass	
Cadmium (filtered)	S19-Jn10723	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S19-Jn10723	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S19-Jn10723	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	S19-Jn10723	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	S19-Jn10723	CP	mg/L	0.33	0.33	1.0	30%	Pass	
Mercury (filtered)	S19-Jn10723	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S19-Jn10723	CP	mg/L	0.009	0.008	1.0	30%	Pass	
Zinc (filtered)	S19-Jn10723	CP	mg/L	0.016	0.016	2.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Total Suspended Solids Dried at 103–105°C	S19-Jn10725	CP	mg/L	110	110	3.0	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	S19-Jn10726	CP	mg/L	43	42	2.0	30%	Pass	
Magnesium	S19-Jn10726	CP	mg/L	34	33	2.0	30%	Pass	
Potassium	S19-Jn10726	CP	mg/L	6.8	6.8	1.0	30%	Pass	
Sodium	S19-Jn10726	CP	mg/L	120	120	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Total Suspended Solids Dried at 103–105°C	S19-Jn10729	CP	mg/L	210	220	4.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Cyanide (total)	S19-Jn10732	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
pH (at 25°C)	S19-Jn10732	CP	pH Units	7.7	7.7	pass	30%	Pass	
Sulphate (as SO4)	S19-Jn10732	CP	mg/L	18	20	12	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ferrous Iron - Fe2+	S19-Jn10733	CP	mg/L	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Total Dissolved Solids Dried at 180°C ± 2°C	S19-Jn10734	CP	mg/L	96	88	9.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S19-Jn10737	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	S19-Jn10737	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	S19-Jn10737	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	S19-Jn10737	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	S19-Jn10737	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	S19-Jn10737	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	S19-Jn10737	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc	S19-Jn10737	CP	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

Authorised By

Nibha Vaidya	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
Emily Rosenberg	Senior Analyst-Metal (VIC)
Gabriele Cordero	Senior Analyst-Inorganic (NSW)
Gabriele Cordero	Senior Analyst-Metal (NSW)
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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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd, Sydney	**Contact Name :** Terry Nham / Thomas Frederick	**Purchase Order :**	**COC Number :**
Office Address : Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Project Manager :** Henry Luo	**PROJECT Number :** 21-27234	**Eurofins | mgt quote ID :** GHD Rates 2019
	Email for results : terry.nham@ghd.com henry.luo@ghd.com thomas.frederick@ghd.com	**PROJECT Name :** Central	**Data output format:** ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number:

	Sample ID	Date	Matrix	TRH, BTEX, PAH, 8 Metals (Dissolved), 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 (Total)	TRH, BTEX, PAH, 8 Metals (B7)	Ferrous Iron	Manganese	pH	TDS	TSS
1	CSM_BH02	30/7/19	Water	X	X	X	X	X	X				X	X	X	X	X
2	CSM_BH04	30/7/19	Water	X	X	X	X	X	X				X	X	X	X	X
3	CSM_BH05	29/7/19	Water	X	X	X	X	X	X				X	X	X	X	X
4	CSM_BH06	30/7/19	Water	X	X	X	X	X	X				X	X	X	X	X
5	CSM_BH08	30/7/19	Water	X	X	X	X	X	X				X	X	X	X	X
6	CSM_BH09S	30/7/19	Water	X	X	X	X	X	X				X	X	X	X	X
7	CSM_BH10S	30/7/19	Water	X	X	X	X	X	X				X	X	X	X	X
8	SRT_BH047	31/7/19	Water	X	X	X	X	X	X				X	X	X	X	X
9	SRT_BH052	31/7/19	Water	X	X	X	X	X	X				X	X	X	X	X
10	SRT_BH059	31/7/19	Water	X	X	X	X	X	X				X	X	X	X	X
11	SRT_BH063	29/7/19	Water	X	X	X	X	X	X				X	X	X	X	X
12	SRT_CBH015	31/7/19	Water	X	X	X	X	X	X				X	X	X	X	X
13	SRT_CBH017	31/7/19	Water	X	X	X	X	X	X				X	X	X	X	X
14	QC01	29/7/19	Water	PLEASE SEND TO ALS WITH ATTACHED COC													
15	QC02	31/7/19	Water								X						
16	RB01	31/7/19	Water								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	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		4		2	2		
1		4		2	2		
1		4		2	2		
1		4		2	2		
1		4		2	2		
1		4		2	2		
		1					

Sample comments:

Laboratory Staff

Relinquished By: Terry Nham - GHD
Date & Time : 31/7/19
Signature:

Received By:
Date & Time : 31/07/19 4:10 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: 10.2°C

Report number:

#669059

T-SINGH T-S EF

eurofins | mgt

☑ **Sydney**
Unit F3 - 6 Building F, 16 Mars Road, Lane Cove
Phone: +612 9900 8400
Email: enviro.syd@mgtlabmark.com.au

☐ **Brisbane**
Unit 1-21 Smallwood Place, Murrarie
Phone: +617 3902 4600
Email: enviro.bris@mgtlabmark.com.au

☐ **Melbourne**
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	**Contact Name :** Terry Nham / Thomas Frederick	**Purchase Order :**	**COC Number :**
Office Address :	**Project Manager :** Henry Luo	**PROJECT Number :** 21-27234	**Eurofins | mgt quote ID :** GHD Rates 2019
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results :** terry.nham@ghd.com henry.luo@ghd.com thomas.frederick@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 (Dissolved), 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 (Total)	TRH, BTEX, PAH, 8 Metals (B7)		Ferrous Iron	Manganese	pH	TDS	TSS
1	Trip Blank	25/7/15	Water							X								
2	Trip Spike	25/7/15	Water							X								
3	GASW_BH7	25/7/15	Water	X	X	X	X	X	X					X	X	X	X	X
4	GASW_BH10	25/7/15	Water	X	X	X	X	X	X					X	X	X	X	X
5	GASW_BH11	25/7/15	Water	X	X	X	X	X	X					X	X	X	X	X
6																		
7																		
8																		
9																		
10																		
11																		
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
				2			
				2			
1		4		2	2		
1		4		2	2		
1		4		2	2		

Sample comments:

Laboratory Staff

Relinquished By: Terry Nham - GHD
Date & Time : 31/7/15
Signature:

Received By: Lina D
Date & Time : 31/07/15 4:10 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: 10.2 °C

Report number:

Melbourne
6 Monterey Road
Dandenong South Vic 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

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

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**GHD Pty Ltd NSW**
Contact name:	Henry Luo
Project name:	CENTRAL
Project ID:	21-27234
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Jul 31, 2019 4:10 PM
Eurofins reference:	**669059**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☑ Sample containers for volatile analysis received with zero headspace.

☑ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Alena Bounkeua on Phone : or by e.mail: AlenaBounkeua@eurofins.com

Results will be delivered electronically via e.mail to Henry Luo - henry.luo@ghd.com.

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 **669059-W**
Project name CENTRAL
Project ID 21-27234
Received Date Jul 31, 2019

Client Sample ID			**CSM_BH02**	**CSM_BH04**	**CSM_BH05**	**CSM_BH06**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**M19-Au00907**	**M19-Au00908**	**M19-Au00909**	**M19-Au00910**
Date Sampled			**Jul 30, 2019**	**Jul 30, 2019**	**Jul 29, 2019**	**Jul 30, 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-C36 (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	%	94	62	60	73
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			CSM_BH02	CSM_BH04	CSM_BH05	CSM_BH06
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00907	M19-Au00908	M19-Au00909	M19-Au00910
Date Sampled			Jul 30, 2019	Jul 30, 2019	Jul 29, 2019	Jul 30, 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	%	70	56	70	58
p-Terphenyl-d14 (surr.)	1	%	78	60	74	61
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	%	81	61	75	60
Tetrachloro-m-xylene (surr.)	1	%	62	71	58	71
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			CSM_BH02	CSM_BH04	CSM_BH05	CSM_BH06
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00907	M19-Au00908	M19-Au00909	M19-Au00910
Date Sampled			Jul 30, 2019	Jul 30, 2019	Jul 29, 2019	Jul 30, 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	%	93	68	85	70
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	%	81	61	75	60
Tetrachloro-m-xylene (surr.)	1	%	62	71	58	71
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			CSM_BH02	CSM_BH04	CSM_BH05	CSM_BH06
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00907	M19-Au00908	M19-Au00909	M19-Au00910
Date Sampled			Jul 30, 2019	Jul 30, 2019	Jul 29, 2019	Jul 30, 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	%	34	26	31	29
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	500	110	160	180
Cyanide (total)	0.005	mg/L	0.092	0.035	0.025	0.029
Ferrous Iron - Fe2+	0.05	mg/L	< 0.05	1.0	1.0	0.56
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
pH (at 25°C)	0.1	pH Units	8.0	7.0	7.2	7.3
Sulphate (as SO4)	5	mg/L	24	38	50	22
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	550	280	500	600
Total Suspended Solids Dried at 103–105°C	1	mg/L	42000	6500	930	960
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	350	100	170	180
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	50	9.0	28	39
Magnesium	0.5	mg/L	43	15	30	35
Potassium	0.5	mg/L	5.8	3.0	6.3	4.9
Sodium	0.5	mg/L	120	79	120	110
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	< 0.001	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.13	0.42	0.45	0.21
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.004	0.018	0.011	0.019
Zinc (filtered)	0.005	mg/L	0.007	0.025	0.024	0.035

Client Sample ID			CSM_BH08	CSM_BH09S	CSM_BH10S	SRT-BH047
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00911	M19-Au00912	M19-Au00913	M19-Au00914
Date Sampled			Jul 30, 2019	Jul 29, 2019	Jul 30, 2019	Jul 31, 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-C36 (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	%	66	138	116	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
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	%	50	61	58	56
p-Terphenyl-d14 (surr.)	1	%	78	87	91	92
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			CSM_BH08	CSM_BH09S	CSM_BH10S	SRT-BH047
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00911	M19-Au00912	M19-Au00913	M19-Au00914
Date Sampled			Jul 30, 2019	Jul 29, 2019	Jul 30, 2019	Jul 31, 2019
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	%	77	87	91	90
Tetrachloro-m-xylene (surr.)	1	%	61	73	71	70
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			CSM_BH08	CSM_BH09S	CSM_BH10S	SRT-BH047
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00911	M19-Au00912	M19-Au00913	M19-Au00914
Date Sampled			Jul 30, 2019	Jul 29, 2019	Jul 30, 2019	Jul 31, 2019
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	%	88	97	105	103
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	%	77	87	91	90
Tetrachloro-m-xylene (surr.)	1	%	61	73	71	70
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	%	42	51	39	43
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			CSM_BH08	CSM_BH09S	CSM_BH10S	SRT-BH047
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00911	M19-Au00912	M19-Au00913	M19-Au00914
Date Sampled			Jul 30, 2019	Jul 29, 2019	Jul 30, 2019	Jul 31, 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	< 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	0.02	0.08	< 0.01	< 0.01
Chloride	1	mg/L	110	88	36	50
Cyanide (total)	0.005	mg/L	0.019	0.010	0.014	0.008
Ferrous Iron - Fe2+	0.05	mg/L	4.4	7.2	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	0.06	< 0.02	2.3	22
pH (at 25°C)	0.1	pH Units	7.3	6.7	6.7	7.6
Sulphate (as SO4)	5	mg/L	37	210	61	13
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	350	460	220	270
Total Suspended Solids Dried at 103–105°C	1	mg/L	6.2	58	200	65
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	190	59	35	88
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	19	7.8	6.9	43
Magnesium	0.5	mg/L	22	8.5	6.4	11
Potassium	0.5	mg/L	4.4	4.7	3.6	1.6
Sodium	0.5	mg/L	83	120	38	35
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	0.002	0.003	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.34	0.64	0.41	0.018
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.021	0.006	0.002	0.001
Zinc (filtered)	0.005	mg/L	0.011	0.036	0.011	0.009

Client Sample ID			SRT-BH052	SRT-BH059	SRT-BH063	SRT-CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00915	M19-Au00916	M19-Au00917	M19-Au00918
Date Sampled			Jul 31, 2019	Jul 31, 2019	Jul 29, 2019	Jul 31, 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

Client Sample ID			SRT-BH052	SRT-BH059	SRT-BH063	SRT-CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00915	M19-Au00916	M19-Au00917	M19-Au00918
Date Sampled			Jul 31, 2019	Jul 31, 2019	Jul 29, 2019	Jul 31, 2019
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-C36 (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	%	87	91	76	89
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	%	60	69	78	74
p-Terphenyl-d14 (surr.)	1	%	64	68	119	109
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-BH052	SRT-BH059	SRT-BH063	SRT-CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00915	M19-Au00916	M19-Au00917	M19-Au00918
Date Sampled			Jul 31, 2019	Jul 31, 2019	Jul 29, 2019	Jul 31, 2019
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	%	62	69	119	110
Tetrachloro-m-xylene (surr.)	1	%	73	57	97	93
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	%	73	77	136	124

Client Sample ID			SRT-BH052	SRT-BH059	SRT-BH063	SRT-CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00915	M19-Au00916	M19-Au00917	M19-Au00918
Date Sampled			Jul 31, 2019	Jul 31, 2019	Jul 29, 2019	Jul 31, 2019
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	%	62	69	119	110
Tetrachloro-m-xylene (surr.)	1	%	73	57	97	93
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	%	26	34	53	57
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	42	26	66	37
Cyanide (total)	0.005	mg/L	0.006	< 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	6.9	3.1	0.07	3.2
pH (at 25°C)	0.1	pH Units	7.6	7.8	7.0	6.0

Client Sample ID			SRT-BH052	SRT-BH059	SRT-BH063	SRT-CBH015
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00915	M19-Au00916	M19-Au00917	M19-Au00918
Date Sampled			Jul 31, 2019	Jul 31, 2019	Jul 29, 2019	Jul 31, 2019
Test/Reference	LOR	Unit				
Sulphate (as SO4)	5	mg/L	29	17	51	42
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	270	270	460	130
Total Suspended Solids Dried at 103–105°C	1	mg/L	100	8.3	33	5.1
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	110	200	300	22
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	30	62	54	2.6
Magnesium	0.5	mg/L	6.3	9.4	35	5.7
Potassium	0.5	mg/L	1.6	6.6	5.7	3.8
Sodium	0.5	mg/L	47	13	68	22
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	< 0.001	0.003	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	< 0.005	< 0.005	< 0.005	6.1
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.001	< 0.001	0.009	0.009
Zinc (filtered)	0.005	mg/L	0.015	< 0.005	0.018	0.021

Client Sample ID			SRT-CBH017	QC02	RB01	TRIPBLANK
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00919	M19-Au00920	M19-Au00921	M19-Au00922
Date Sampled			Jul 31, 2019	Jul 31, 2019	Jul 31, 2019	Jul 29, 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	-	-
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	-	< 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-C36 (Total)	0.1	mg/L	< 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

Client Sample ID			SRT-CBH017	QC02	RB01	TRIPBLANK
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00919	M19-Au00920	M19-Au00921	M19-Au00922
Date Sampled			Jul 31, 2019	Jul 31, 2019	Jul 31, 2019	Jul 29, 2019
Test/Reference	LOR	Unit				
BTEX						
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	%	89	76	-	105
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	%	79	95	-	-
p-Terphenyl-d14 (surr.)	1	%	82	137	-	-
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	-	-	-
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	-	-	-

Client Sample ID			SRT-CBH017	QC02	RB01	TRIPBLANK
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00919	M19-Au00920	M19-Au00921	M19-Au00922
Date Sampled			Jul 31, 2019	Jul 31, 2019	Jul 31, 2019	Jul 29, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Dibutylchlorendate (surr.)	1	%	90	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	77	-	-	-
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	-	-	-
Aroclor-1260	0.001	mg/L	< 0.001	-	-	-
Total PCB*	0.001	mg/L	< 0.001	-	-	-
Dibutylchlorendate (surr.)	1	%	90	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	77	-	-	-

Client Sample ID			SRT-CBH017	QC02	RB01	TRIPBLANK
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00919	M19-Au00920	M19-Au00921	M19-Au00922
Date Sampled			Jul 31, 2019	Jul 31, 2019	Jul 31, 2019	Jul 29, 2019
Test/Reference	LOR	Unit				
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	50	-	-	-
Cyanide (total)	0.005	mg/L	< 0.005	-	-	-
Ferrous Iron - Fe2+	0.05	mg/L	< 0.05	-	-	-
Nitrate (as N)	0.02	mg/L	0.48	-	-	-
pH (at 25°C)	0.1	pH Units	6.8	-	-	-
Sulphate (as SO4)	5	mg/L	23	-	-	-
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	130	-	-	-
Total Suspended Solids Dried at 103–105°C	1	mg/L	79	-	-	-
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	59	-	-	-
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	-	-	-
Alkali Metals						
Calcium	0.5	mg/L	11	-	-	-
Magnesium	0.5	mg/L	9.8	-	-	-
Potassium	0.5	mg/L	3.4	-	-	-
Sodium	0.5	mg/L	20	-	-	-

Client Sample ID			SRT-CBH017	QC02	RB01	TRIPBLANK
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00919	M19-Au00920	M19-Au00921	M19-Au00922
Date Sampled			Jul 31, 2019	Jul 31, 2019	Jul 31, 2019	Jul 29, 2019
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	0.002	< 0.001	-	-
Lead	0.001	mg/L	-	-	< 0.001	-
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	-	-
Manganese (filtered)	0.005	mg/L	2.1	-	-	-
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	0.005	0.009	-	-
Zinc	0.005	mg/L	-	-	< 0.005	-
Zinc (filtered)	0.005	mg/L	0.015	0.022	-	-

Client Sample ID			[R20]TRIPSPIKE	GASW_BH7	GASW_BH10	GASW_BH11
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00923	M19-Au00924	M19-Au00925	M19-Au00926
Date Sampled			Jul 29, 2019	Jul 30, 2019	Jul 30, 2019	Jul 30, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	110	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	85	0.03	< 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	-	0.14	0.05	0.10
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	-	0.14	0.05	0.1
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	-	0.14	< 0.1	0.1
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	83	0.03	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	-	0.08	0.05	0.06
TRH C15-C28	0.1	mg/L	-	0.2	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	-	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	-	0.28	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	120	0.009	< 0.001	< 0.001
Toluene	0.001	mg/L	120	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	120	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	110	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	120	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	120	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	106	100	102	100

Client Sample ID			R20 TRIPSPIKE	GASW_BH7	GASW_BH10	GASW_BH11
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00923	M19-Au00924	M19-Au00925	M19-Au00926
Date Sampled			Jul 29, 2019	Jul 30, 2019	Jul 30, 2019	Jul 30, 2019
Test/Reference	LOR	Unit				
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	%	-	55	69	52
p-Terphenyl-d14 (surr.)	1	%	-	82	100	75
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
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	%	-	76	90	67
Tetrachloro-m-xylene (surr.)	1	%	-	71	83	64

Client Sample ID			R20TRIPSPIKE	GASW_BH7	GASW_BH10	GASW_BH11
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00923	M19-Au00924	M19-Au00925	M19-Au00926
Date Sampled			Jul 29, 2019	Jul 30, 2019	Jul 30, 2019	Jul 30, 2019
Test/Reference	LOR	Unit				
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
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	%	-	121	144	107
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	%	-	76	90	67
Tetrachloro-m-xylene (surr.)	1	%	-	71	83	64

Client Sample ID			R20TRIPSPIKE	GASW_BH7	GASW_BH10	GASW_BH11
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00923	M19-Au00924	M19-Au00925	M19-Au00926
Date Sampled			Jul 29, 2019	Jul 30, 2019	Jul 30, 2019	Jul 30, 2019
Test/Reference	LOR	Unit				
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	%	-	33	73	61
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
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	-	0.03	< 0.01	0.03
Chloride	1	mg/L	-	41	160	100
Cyanide (total)	0.005	mg/L	-	0.006	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.05	mg/L	-	17	3.7	3.1
Nitrate (as N)	0.02	mg/L	-	< 0.02	< 0.02	< 0.02
pH (at 25°C)	0.1	pH Units	-	3.9	7.0	6.3
Sulphate (as SO4)	5	mg/L	-	150	< 5	59
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	-	280	610	210
Total Suspended Solids Dried at 103–105°C	1	mg/L	-	20	150	44
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	-	< 20	330	70
Carbonate Alkalinity (as CaCO3)	10	mg/L	-	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	-	5.4	48	4.4
Magnesium	0.5	mg/L	-	4.8	43	8.4
Potassium	0.5	mg/L	-	0.8	9.7	2.0
Sodium	0.5	mg/L	-	63	130	56

Client Sample ID			R20 TRIPSPIKE	GASW_BH7	GASW_BH10	GASW_BH11
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Au00923	M19-Au00924	M19-Au00925	M19-Au00926
Date Sampled			Jul 29, 2019	Jul 30, 2019	Jul 30, 2019	Jul 30, 2019
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	-	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	-	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	-	0.007	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	-	0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	-	0.12	0.25	0.20
Mercury (filtered)	0.0001	mg/L	-	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	-	0.003	0.042	0.002
Zinc (filtered)	0.005	mg/L	-	0.059	< 0.005	0.007

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.

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	Aug 05, 2019	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Melbourne	Aug 05, 2019	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Aug 05, 2019	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Aug 05, 2019	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Eurofins | mgt Suite B7A (filtered metals)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Aug 05, 2019	
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Aug 05, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Melbourne	Aug 05, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Aug 05, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8 filtered	Melbourne	Aug 05, 2019	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins | mgt Suite B15			
Organochlorine Pesticides	Melbourne	Aug 05, 2019	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270)			
Organophosphorus Pesticides	Melbourne	Aug 05, 2019	7 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS (USEPA 8081)			
Polychlorinated Biphenyls	Melbourne	Aug 05, 2019	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8082)			
TRH - 2013 NEPM Fractions (after silica gel clean-up)	Melbourne	Aug 05, 2019	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
TRH - 1999 NEPM Fractions (after silica gel clean-up)	Melbourne	Aug 05, 2019	7 Days
- Method: TRH C6-C36 (Silica Gel Cleanup) - MGT 100A			
Major Cations			
Ammonia (as N)	Melbourne	Aug 05, 2019	28 Days
- Method: LTM-INO-4200 Ammonia by Discrete Analyser			
Alkali Metals	Melbourne	Aug 05, 2019	180 Days
- Method: LTM-MET-3010 Alkali Metals S Si and P by ICP-AES			
Major Anions			
Chloride	Melbourne	Aug 05, 2019	28 Days
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Nitrate (as N)	Melbourne	Aug 05, 2019	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Sulphate (as SO4)	Melbourne	Aug 05, 2019	28 Days
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Aug 05, 2019	14 Days
- Method: LTM-INO-4250 Alkalinity by Electrometric Titration			
Cyanide (total)	Melbourne	Aug 05, 2019	14 Days
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Ferrous Iron - Fe2+	Melbourne	Aug 05, 2019	7 Days
- Method: LTM-INO-4190 Ferrous Iron in Water by Discrete Analyser			
pH (at 25°C)	Melbourne	Aug 05, 2019	0 Hours
- Method: LTM-GEN-7090 pH in water by ISE			

Description	Testing Site	Extracted	Holding Time
Total Dissolved Solids Dried at 180°C ± 2°C	Melbourne	Aug 05, 2019	7 Days
- Method: LTM-INO-4170 Total Dissolved Solids in Water			
Total Suspended Solids Dried at 103–105°C	Melbourne	Aug 05, 2019	7 Days
- Method: LTM-INO-4070 Analysis of Suspended Solids in Water by Gravimetry			
Metals M8	Melbourne	Aug 05, 2019	180 Days
- Method:			
Heavy Metals (filtered)	Melbourne	Aug 05, 2019	180 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 #: 669059
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Jul 31, 2019 4:10 PM
Due: Aug 7, 2019
Priority: 5 Day
Contact Name: Henry Luo

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	pH (at 25°C)	Total Dissolved Solids Dried at 180°C ± 2°C	Total Suspended Solids Dried at 103–105°C	Metals M8	Eurofins | mgt Suite B15	Major Anions	Major Cations	TRH (after Silica Gel cleanup)	Total Recoverable Hydrocarbons	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	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	CSM_BH02	Jul 30, 2019		Water	M19-Au00907	X	X	X	X	X	X		X	X	X	X	X		X	
2	CSM_BH04	Jul 30, 2019		Water	M19-Au00908	X	X	X	X	X	X		X	X	X	X	X		X	
3	CSM_BH05	Jul 29, 2019		Water	M19-Au00909	X	X	X	X	X	X		X	X	X	X	X		X	
4	CSM_BH06	Jul 30, 2019		Water	M19-Au00910	X	X	X	X	X	X		X	X	X	X	X		X	
5	CSM_BH08	Jul 30, 2019		Water	M19-Au00911	X	X	X	X	X	X		X	X	X	X	X		X	
6	CSM_BH09S	Jul 29, 2019		Water	M19-Au00912	X	X	X	X	X	X		X	X	X	X	X		X	
7	CSM_BH10S	Jul 30, 2019		Water	M19-Au00913	X	X	X	X	X	X		X	X	X	X	X		X	
8	SRT-BH047	Jul 31, 2019		Water	M19-Au00914	X	X	X	X	X	X		X	X	X	X	X		X	
9	SRT-BH052	Jul 31, 2019		Water	M19-Au00915	X	X	X	X	X	X		X	X	X	X	X		X	

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Contact Name: Henry Luo

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	pH (at 25°C)	Total Dissolved Solids Dried at 180°C ± 2°C	Total Suspended Solids Dried at 103–105°C	Metals M8	Eurofins | mgt Suite B15	Major Anions	Major Cations	TRH (after Silica Gel cleanup)	Total Recoverable Hydrocarbons	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	X	X	X	X
Sydney Laboratory - NATA Site # 18217																				
Brisbane Laboratory - NATA Site # 20794																				
Perth Laboratory - NATA Site # 23736																				
10	SRT-BH059	Jul 31, 2019		Water	M19-Au00916	X	X	X	X	X	X		X	X	X	X	X		X	
11	SRT-BH063	Jul 29, 2019		Water	M19-Au00917	X	X	X	X	X	X		X	X	X	X	X		X	
12	SRT-CBH015	Jul 31, 2019		Water	M19-Au00918	X	X	X	X	X	X		X	X	X	X	X		X	
13	SRT-CBH017	Jul 31, 2019		Water	M19-Au00919	X	X	X	X	X	X		X	X	X	X	X		X	
14	QC02	Jul 31, 2019		Water	M19-Au00920													X		
15	RB01	Jul 31, 2019		Water	M19-Au00921							X								
16	TRIPBLANK	Jul 29, 2019		Water	M19-Au00922															X
17	TRIPSPIKE	Jul 29, 2019		Water	M19-Au00923															X
18	GASW_BH7	Jul 30, 2019		Water	M19-Au00924	X	X	X	X	X	X		X	X	X	X	X		X	
19	GASW_BH10	Jul 30, 2019		Water	M19-Au00925	X	X	X	X	X	X		X	X	X	X	X		X	
20	GASW_BH11	Jul 30, 2019		Water	M19-Au00926	X	X	X	X	X	X		X	X	X	X	X		X	
Test Counts						16	16	16	16	16	16	1	16	16	16	16	16	1	16	2

eurofins | Environment Testing

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

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

Units

mg/kg: milligrams per kilogram | **mg/L:** milligrams per litre | **ug/L:** micrograms per litre

ppm: Parts per million | **ppb:** Parts per billion | **%:** Percentage

org/100mL: Organisms per 100 millilitres | **NTU:** Nephelometric Turbidity Units | **MPN/100mL:** Most Probable Number of organisms per 100 millilitres

Terms

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

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 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	
Total Dissolved Solids Dried at 180°C ± 2°C	mg/L	< 10			10	Pass	
Total Suspended Solids Dried at 103–105°C	mg/L	< 1			1	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	%	85			70-130	Pass	
TRH C6-C10	%	109			70-130	Pass	
TRH >C10-C16	%	79			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	116			70-130	Pass	
TRH C10-C14	%	84			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	95			70-130	Pass	
Toluene	%	99			70-130	Pass	
Ethylbenzene	%	101			70-130	Pass	
m&p-Xylenes	%	98			70-130	Pass	
Xylenes - Total	%	97			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	95			70-130	Pass	
Acenaphthylene	%	95			70-130	Pass	
Anthracene	%	88			70-130	Pass	
Benz(a)anthracene	%	91			70-130	Pass	
Benzo(a)pyrene	%	86			70-130	Pass	
Benzo(b&j)fluoranthene	%	104			70-130	Pass	
Benzo(g.h.i)perylene	%	84			70-130	Pass	
Benzo(k)fluoranthene	%	96			70-130	Pass	
Chrysene	%	112			70-130	Pass	
Dibenz(a.h)anthracene	%	102			70-130	Pass	
Fluoranthene	%	114			70-130	Pass	
Fluorene	%	109			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	83			70-130	Pass	
Naphthalene	%	103			70-130	Pass	
Phenanthrene	%	105			70-130	Pass	
Pyrene	%	114			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	110			70-130	Pass	
4.4'-DDD	%	79			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDE	%	100			70-130	Pass	
4.4'-DDT	%	79			70-130	Pass	
a-BHC	%	95			70-130	Pass	
Aldrin	%	112			70-130	Pass	
b-BHC	%	81			70-130	Pass	
d-BHC	%	90			70-130	Pass	
Dieldrin	%	107			70-130	Pass	
Endosulfan I	%	90			70-130	Pass	
Endosulfan II	%	85			70-130	Pass	
Endosulfan sulphate	%	99			70-130	Pass	
Endrin	%	95			70-130	Pass	
Endrin aldehyde	%	116			70-130	Pass	
Endrin ketone	%	84			70-130	Pass	
g-BHC (Lindane)	%	90			70-130	Pass	
Heptachlor	%	85			70-130	Pass	
Heptachlor epoxide	%	98			70-130	Pass	
Hexachlorobenzene	%	106			70-130	Pass	
Methoxychlor	%	77			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	109			70-130	Pass	
Dimethoate	%	101			70-130	Pass	
Ethion	%	95			70-130	Pass	
Fenitrothion	%	120			70-130	Pass	
Methyl parathion	%	114			70-130	Pass	
Mevinphos	%	86			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	81			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	96			30-130	Pass	
2.4-Dichlorophenol	%	99			30-130	Pass	
2.4.5-Trichlorophenol	%	114			30-130	Pass	
2.4.6-Trichlorophenol	%	88			30-130	Pass	
2.6-Dichlorophenol	%	104			30-130	Pass	
4-Chloro-3-methylphenol	%	94			30-130	Pass	
Pentachlorophenol	%	96			30-130	Pass	
Tetrachlorophenols - Total	%	97			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	123			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	114			30-130	Pass	
2-Methylphenol (o-Cresol)	%	93			30-130	Pass	
2-Nitrophenol	%	109			30-130	Pass	
2.4-Dimethylphenol	%	81			30-130	Pass	
2.4-Dinitrophenol	%	96			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	90			30-130	Pass	
4-Nitrophenol	%	128			30-130	Pass	
Dinoseb	%	115			30-130	Pass	
Phenol	%	61			30-130	Pass	
LCS - % Recovery							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	%	77			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	%	79			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	102			70-130	Pass	
Chloride	%	102			70-130	Pass	
Cyanide (total)	%	91			70-130	Pass	
Ferrous Iron - Fe2+	%	80			70-130	Pass	
Nitrate (as N)	%	98			70-130	Pass	
Sulphate (as SO4)	%	114			70-130	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	%	91			70-130	Pass	
Total Suspended Solids Dried at 103–105°C	%	98			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO3)	%	89			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	100			70-130	Pass	
Magnesium	%	96			70-130	Pass	
Potassium	%	102			70-130	Pass	
Sodium	%	109			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	101			80-120	Pass	
Cadmium	%	102			80-120	Pass	
Chromium	%	100			80-120	Pass	
Copper	%	102			80-120	Pass	
Lead	%	102			80-120	Pass	
Mercury	%	101			75-125	Pass	
Nickel	%	103			80-120	Pass	
Zinc	%	104			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-Au03638	NCP	%	73			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	M19-Au03638	NCP	%	71			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	S19-Au02885	NCP	%	104			70-130	Pass	
Nitrate (as N)	S19-Au02885	NCP	%	93			70-130	Pass	
Spike - % Recovery									
Alkalinity (speciated)				Result 1					
Bicarbonate Alkalinity (as CaCO3)	S19-Au01159	NCP	%	105			70-130	Pass	
Carbonate Alkalinity (as CaCO3)	S19-Au01159	NCP	%	17			70-130	Fail	Q08
Spike - % Recovery									
				Result 1					
Ferrous Iron - Fe2+	M19-Au00910	CP	%	97			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M19-Au00912	CP	%	107			70-130	Pass	
Acenaphthylene	M19-Au00912	CP	%	110			70-130	Pass	
Anthracene	M19-Au00912	CP	%	113			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benz(a)anthracene	M19-Au00912	CP	%	101			70-130	Pass	
Benzo(a)pyrene	M19-Au00912	CP	%	104			70-130	Pass	
Benzo(b&j)fluoranthene	M19-Au00912	CP	%	96			70-130	Pass	
Benzo(g.h.i)perylene	M19-Au00912	CP	%	99			70-130	Pass	
Benzo(k)fluoranthene	M19-Au00912	CP	%	93			70-130	Pass	
Chrysene	M19-Au00912	CP	%	91			70-130	Pass	
Dibenz(a.h)anthracene	M19-Au00912	CP	%	120			70-130	Pass	
Fluoranthene	M19-Au00912	CP	%	115			70-130	Pass	
Fluorene	M19-Au00912	CP	%	113			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M19-Au00912	CP	%	99			70-130	Pass	
Naphthalene	M19-Au00912	CP	%	103			70-130	Pass	
Phenanthrene	M19-Au00912	CP	%	106			70-130	Pass	
Pyrene	M19-Au00912	CP	%	117			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M19-Au00912	CP	%	93			30-130	Pass	
2.4-Dichlorophenol	M19-Au00912	CP	%	102			30-130	Pass	
2.4.5-Trichlorophenol	M19-Au00912	CP	%	106			30-130	Pass	
2.4.6-Trichlorophenol	M19-Au00912	CP	%	115			30-130	Pass	
2.6-Dichlorophenol	M19-Au00912	CP	%	104			30-130	Pass	
4-Chloro-3-methylphenol	M19-Au00912	CP	%	102			30-130	Pass	
Pentachlorophenol	M19-Au00912	CP	%	113			30-130	Pass	
Tetrachlorophenols - Total	M19-Au00912	CP	%	107			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M19-Au00912	CP	%	125			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M19-Au00912	CP	%	104			30-130	Pass	
2-Methylphenol (o-Cresol)	M19-Au00912	CP	%	101			30-130	Pass	
2-Nitrophenol	M19-Au00912	CP	%	101			30-130	Pass	
2.4-Dimethylphenol	M19-Au00912	CP	%	72			30-130	Pass	
2.4-Dinitrophenol	M19-Au00912	CP	%	47			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Au00912	CP	%	99			30-130	Pass	
4-Nitrophenol	M19-Au00912	CP	%	112			30-130	Pass	
Dinoseb	M19-Au00912	CP	%	113			30-130	Pass	
Phenol	M19-Au00912	CP	%	75			30-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M19-Au00912	CP	%	91			70-130	Pass	
Cadmium (filtered)	M19-Au00912	CP	%	92			70-130	Pass	
Chromium (filtered)	M19-Au00912	CP	%	89			70-130	Pass	
Copper (filtered)	M19-Au00912	CP	%	91			70-130	Pass	
Lead (filtered)	M19-Au00912	CP	%	91			70-130	Pass	
Manganese (filtered)	M19-Au00912	CP	%	34			70-130	Fail	Q08
Mercury (filtered)	M19-Au00912	CP	%	92			70-130	Pass	
Nickel (filtered)	M19-Au00912	CP	%	91			70-130	Pass	
Zinc (filtered)	M19-Au00912	CP	%	91			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chloride	M19-Au00913	CP	%	76			70-130	Pass	
Sulphate (as SO4)	M19-Au00913	CP	%	71			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M19-Au05743	NCP	%	117			70-130	Pass	
TRH C6-C10	M19-Au05743	NCP	%	107			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M19-Au05743	NCP	%	97			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M19-Au05743	NCP	%	93			70-130	Pass	
Toluene	M19-Au05743	NCP	%	102			70-130	Pass	
Ethylbenzene	M19-Au05743	NCP	%	117			70-130	Pass	
m&p-Xylenes	M19-Au05743	NCP	%	105			70-130	Pass	
o-Xylene	M19-Au05743	NCP	%	110			70-130	Pass	
Xylenes - Total	M19-Au05743	NCP	%	107			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ferrous Iron - Fe2+	M19-Au00915	CP	%	114			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M19-Au00916	CP	%	105			70-130	Pass	
Magnesium	M19-Au00916	CP	%	108			70-130	Pass	
Potassium	M19-Au00916	CP	%	104			70-130	Pass	
Sodium	M19-Au00916	CP	%	107			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M19-Au00921	CP	%	94			75-125	Pass	
Cadmium	M19-Au00921	CP	%	97			75-125	Pass	
Chromium	M19-Au00921	CP	%	93			75-125	Pass	
Copper	M19-Au00921	CP	%	94			75-125	Pass	
Lead	M19-Au00921	CP	%	94			75-125	Pass	
Mercury	M19-Au01647	NCP	%	91			70-130	Pass	
Nickel	M19-Au00921	CP	%	95			75-125	Pass	
Zinc	M19-Au00921	CP	%	89			75-125	Pass	
Spike - % Recovery									
				Result 1					
Cyanide (total)	M19-Au00926	CP	%	121			70-130	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)	S19-Au02885	NCP	mg/L	0.12	0.12	2.0	30%	Pass	
Nitrate (as N)	S19-Au02885	NCP	mg/L	1.5	1.5	1.0	30%	Pass	
pH (at 25°C)	M19-Au00907	CP	pH Units	8.0	7.9	pass	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M19-Au00907	CP	mg/L	350	340	4.0	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M19-Au00907	CP	mg/L	< 10	< 10	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	M19-Au00909	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M19-Au00909	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M19-Au00909	CP	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-Au00909	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M19-Au00909	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M19-Au00909	CP	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)	M19-Au00909	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34 (after silica gel clean-up)	M19-Au00909	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40 (after silica gel clean-up)	M19-Au00909	CP	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-C36 (Total) (after silica gel clean-up)	M19-Au00909	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C10-C14 (after silica gel clean-up)	M19-Au00909	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28 (after silica gel clean-up)	M19-Au00909	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36 (after silica gel clean-up)	M19-Au00909	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ferrous Iron - Fe2+	M19-Au00910	CP	mg/L	0.56	0.65	15	30%	Pass	
Total Suspended Solids Dried at 103–105°C	M19-Au00910	CP	mg/L	960	920	4.0	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M19-Au00911	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	M19-Au00911	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	M19-Au00911	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	M19-Au00911	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	M19-Au00911	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M19-Au00911	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	M19-Au00911	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	M19-Au00911	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	M19-Au00911	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	M19-Au00911	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	M19-Au00911	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	M19-Au00911	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M19-Au00911	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	M19-Au00911	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	M19-Au00911	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	M19-Au00911	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M19-Au00911	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4.4'-DDD	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDE	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDT	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
a-BHC	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Aldrin	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
b-BHC	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
d-BHC	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Dieldrin	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan I	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan II	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan sulphate	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin aldehyde	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin ketone	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
g-BHC (Lindane)	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Heptachlor	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor epoxide	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Hexachlorobenzene	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Methoxychlor	M19-Au00911	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Bolstar	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorfenvinphos	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorpyrifos	M19-Au00911	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Chlorpyrifos-methyl	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Coumaphos	M19-Au00911	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-S	M19-Au00911	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-O	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Diazinon	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dichlorvos	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dimethoate	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Disulfoton	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
EPN	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethion	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethoprop	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethyl parathion	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenitrothion	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fensulfothion	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenthion	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Malathion	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Merphos	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methyl parathion	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Mevinphos	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Monocrotophos	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Naled	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Omethoate	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Phorate	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Pirimiphos-methyl	M19-Au00911	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Pyrazophos	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ronnel	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Terbufos	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tetrachlorvinphos	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tokuthion	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Trichloronate	M19-Au00911	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M19-Au00911	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dichlorophenol	M19-Au00911	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4.5-Trichlorophenol	M19-Au00911	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	M19-Au00911	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	M19-Au00911	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
4-Chloro-3-methylphenol	M19-Au00911	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Pentachlorophenol	M19-Au00911	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Tetrachlorophenols - Total	M19-Au00911	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	

Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M19-Au00911	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M19-Au00911	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M19-Au00911	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Nitrophenol	M19-Au00911	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dimethylphenol	M19-Au00911	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	M19-Au00911	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Au00911	CP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
4-Nitrophenol	M19-Au00911	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Dinoseb	M19-Au00911	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Phenol	M19-Au00911	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M19-Au00912	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	M19-Au00912	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M19-Au00912	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	M19-Au00912	CP	mg/L	0.002	0.002	16	30%	Pass	
Lead (filtered)	M19-Au00912	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	M19-Au00912	CP	mg/L	0.64	0.62	3.0	30%	Pass	
Mercury (filtered)	M19-Au00912	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M19-Au00912	CP	mg/L	0.006	0.006	6.0	30%	Pass	
Zinc (filtered)	M19-Au00912	CP	mg/L	0.036	0.036	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	M19-Au00913	CP	mg/L	36	32	13	30%	Pass	
Sulphate (as SO4)	M19-Au00913	CP	mg/L	61	60	1.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	M19-Au00914	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M19-Au00914	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M19-Au00914	CP	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-Au00914	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M19-Au00914	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M19-Au00914	CP	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)	M19-Au00914	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34 (after silica gel clean-up)	M19-Au00914	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40 (after silica gel clean-up)	M19-Au00914	CP	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-C36 (Total) (after silica gel clean-up)	M19-Au00914	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C10-C14 (after silica gel clean-up)	M19-Au00914	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28 (after silica gel clean-up)	M19-Au00914	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36 (after silica gel clean-up)	M19-Au00914	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ferrous Iron - Fe2+	M19-Au00914	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	M19-Au00914	CP	mg/L	270	280	4.0	30%	Pass	

Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M19-Au00916	CP	mg/L	62	61	2.0	30%	Pass	
Magnesium	M19-Au00916	CP	mg/L	9.4	9.2	2.0	30%	Pass	
Potassium	M19-Au00916	CP	mg/L	6.6	6.5	2.0	30%	Pass	
Sodium	M19-Au00916	CP	mg/L	13	13	2.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
pH (at 25°C)	M19-Au00918	CP	pH Units	6.0	6.0	pass	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M19-Au00918	CP	mg/L	22	22	1.0	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M19-Au00918	CP	mg/L	< 10	< 10	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Total Suspended Solids Dried at 103–105°C	M19-Au00919	CP	mg/L	79	60	26	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M19-Jl46575	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	M19-Jl46575	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M19-Jl46575	NCP	mg/L	0.008	0.009	3.0	30%	Pass	
Copper	M19-Jl46575	NCP	mg/L	0.15	0.15	1.0	30%	Pass	
Lead	M19-Jl46575	NCP	mg/L	0.002	0.002	5.0	30%	Pass	
Mercury	M19-Jl46575	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	M19-Jl46575	NCP	mg/L	0.004	0.004	2.0	30%	Pass	
Zinc	M19-Jl46575	NCP	mg/L	0.13	0.13	5.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M19-Au00922	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	M19-Au00922	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	M19-Au00922	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M19-Au00922	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	M19-Au00922	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	M19-Au00922	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M19-Au00922	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	M19-Au00922	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	M19-Au00922	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ferrous Iron - Fe2+	M19-Au00924	CP	mg/L	17	17	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Cyanide (total)	M19-Au00926	CP	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
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference
R20	This sample is a Trip Spike and therefore all results are reported as a percentage

Authorised By

Alena Bounkeua	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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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd, Sydney	**Contact Name :** Terry Nham / [redacted]	**Purchase Order :**	**COC Number :**
Office Address :	**Project Manager :** Henry Luo	**PROJECT Number :** 21-27234	**Eurofins | mgt quote ID :** GHD Rates 2019
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results :** terry.nham@ghd.com henry.luo@ghd.com [redacted]	**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 (Dissolved), 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 (Total)	TRH, BTEX, PAH, 8 Metals (B7) Dissolved	Ferrous Iron	Manganese	pH	TDS	TSS
1	CSM_BH02	29/8/19	Water	X	X	X	X	X	X				X	X	X	X	X
2	CSM_BH04	29/8/19	Water	X	X	X	X	X	X				X	X	X	X	X
3	[redacted]		Water	X	X	X	X	X	X				X	X	X	X	X
4	CSM_BH06	28/8/19	Water	X	X	X	X	X	X				X	X	X	X	X
5	CSM_BH08	29/8/19	Water	X	X	X	X	X	X				X	X	X	X	X
6	CSM_BH09S	28/8/19	Water	X	X	X	X	X	X				X	X	X	X	X
7	CSM_BH10S	28/8/19	Water	X	X	X	X	X	X				X	X	X	X	X
8	SRT_BH047	30/8/19	Water	X	X	X	X	X	X				X	X	X	X	X
9	SRT_BH052	30/8/19	Water	X	X	X	X	X	X				X	X	X	X	X
10	SRT_BH059	30/8/19	Water	X	X	X	X	X	X				X	X	X	X	X
11	SRT_BH063	30/8/19	Water	X	X	X	X	X	X				X	X	X	X	X
12	SRT_CBH015	30/8/19	Water	X	X	X	X	X	X				X	X	X	X	X
13	SRT_CBH017	30/8/19	Water	X	X	X	X	X	X				X	X	X	X	X
14	QC01	25/8/19	Water	PLEASE SEND TO ALS WITH ATTACHED COC													
15	QC02	30/8/19	Water									X					
16	RB01	29/8/19	Water								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	60P	1LA	40mL vial	200mL A	Jar	Bag	Sample comments:
1	1		4		2	2			
2	1		4		2	2			
3	[redacted]								
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		4		2	2			
10	1		4		2	2			
11	1		4		2	2			
12	1		4		2	2			
13	1		4		2	2			
14	1		4		2	2			
15	1		4		2	2			
16			1						

Relinquished By: Terry Nham - GHD
Date & Time : 30/8/2019
Signature:

Laboratory Staff
Received By: Jake. W
Date & Time: 30/08 3:20pm
Signature:

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

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

Temperature on arrival:
Chilled: Yes / No
Temp: 2.0
Correction:
Final Temp:

Report number:

Jake 30/8 674722

eurofins | mgt

☑ **Sydney**
Unit F3 - 6 Building F, 16 Mars Road, Lane Cove
Phone: +612 9900 8400
Email: enviro.syd@mgtlabmark.com.au

☐ **Brisbane**
Unit 1-21 Smallwood Place, Murrarie
Phone: +617 3902 4600
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☐ **Melbourne**
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	**Contact Name :** Terry Nham / ~~Thomas Frederick~~	**Purchase Order :**	**COC Number :**
Office Address :	**Project Manager :** Henry Luo	**PROJECT Number :** 21-27234	**Eurofins | mgt quote ID :** GHD Rates 2019
Level 15, 133 Castlereagh Street, Sydney NSW 2000	**Email for results :** terry.nham@ghd.com henry.luo@ghd.com [redacted]@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 (Dissolved), 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 (Total)	TRH, BTEX, PAH, 8 Metals (B7)	(Dissolved)	Ferrous Iron	Manganese	pH	TDS	TSS	Containers: 500P	250P	60P	1LA	40mL vial	200mL A	Jar	Bag	Sample comments:
1	Trip Blank	28/8/19	Water							X													2				
2	Trip Spike	28/8/19	Water							X													2				
3	GASW_BH7	29/8/19	Water	X	X	X	X	X	X					X	X	X	X	X	1		4		2	2			
4	GASW_BH10	29/8/19	Water	X	X	X	X	X	X					X	X	X	X	X	1		4		2	2			
5	GASW_BH11	29/8/19	Water	X	X	X	X	X	X					X	X	X	X	X	1		4		2	2			
6																											
7																											
8																											
9																											
10																											
11																											
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

Relinquished By: Terry Nham - GHD	Laboratory Staff	Turn around time	Method Of Shipment	Temperature on arrival:
Date & Time : 30/8/2019	Received By: Jack. W	1 DAY ☐ 2 DAY ☐ 3 DAY ☐	☐ Courier	
Signature:	Date & Time : 30/08 3:20pm	5 DAY ☒ 10 DAY ☐ Other:	☒ Hand Delivered	Report number:
	Signature:		☐ Postal	
			Courier Consignment # :	

Melbourne
6 Monterey Road
Dandenong South Vic 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
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NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**GHD Pty Ltd NSW**
Contact name:	Henry Luo
Project name:	CENTRAL
Project ID:	21-27234
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Aug 30, 2019 3:20 PM
Eurofins reference:	**674722**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins Sample Receipt : 2.4 degrees Celsius.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☑ Sample containers for volatile analysis received with zero headspace.

☑ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Alena Bounkeua on Phone : or by e.mail: AlenaBounkeua@eurofins.com

Results will be delivered electronically via e.mail to Henry Luo - henry.luo@ghd.com.

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 **674722-W**
Project name CENTRAL
Project ID 21-27234
Received Date Aug 30, 2019

Client Sample ID			**CSM_BH02**	**CSM_BH04**	**CSM_BH06**	**CSM_BH08**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**M19-Se03055**	**M19-Se03056**	**M19-Se03057**	**M19-Se03058**
Date Sampled			**Aug 29, 2019**	**Aug 29, 2019**	**Aug 28, 2019**	**Aug 29, 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-C36 (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	%	109	109	80	104
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			CSM_BH02	CSM_BH04	CSM_BH06	CSM_BH08
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se03055	M19-Se03056	M19-Se03057	M19-Se03058
Date Sampled			Aug 29, 2019	Aug 29, 2019	Aug 28, 2019	Aug 29, 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	%	82	84	87	102
p-Terphenyl-d14 (surr.)	1	%	100	101	95	89
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	%	88	89	86	82
Tetrachloro-m-xylene (surr.)	1	%	85	89	89	91
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			CSM_BH02	CSM_BH04	CSM_BH06	CSM_BH08
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se03055	M19-Se03056	M19-Se03057	M19-Se03058
Date Sampled			Aug 29, 2019	Aug 29, 2019	Aug 28, 2019	Aug 29, 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	%	94	96	88	90
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	%	88	89	86	82
Tetrachloro-m-xylene (surr.)	1	%	85	89	89	91
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			CSM_BH02	CSM_BH04	CSM_BH06	CSM_BH08
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se03055	M19-Se03056	M19-Se03057	M19-Se03058
Date Sampled			Aug 29, 2019	Aug 29, 2019	Aug 28, 2019	Aug 29, 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	%	57	57	64	58
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	0.03
Chloride	1	mg/L	190	55	200	110
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.05	mg/L	< 0.05	2.0	< 0.05	6.6
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	0.03	< 0.02
pH (at 25°C)	0.1	pH Units	7.9	6.5	8.0	7.4
Sulphate (as SO4)	5	mg/L	25	45	22	32
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	610	290	600	420
Total Suspended Solids Dried at 103–105°C	1	mg/L	6400	630	810	34
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	320	120	210	160
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	49	6.3	41	17
Magnesium	0.5	mg/L	40	12	34	23
Potassium	0.5	mg/L	5.7	2.2	5.2	4.3
Sodium	0.5	mg/L	120	72	110	93
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.002	0.003	0.010	0.021
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.24	0.45	0.23	0.40
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.006	0.037	0.019	0.016
Zinc (filtered)	0.005	mg/L	0.007	0.10	0.086	0.16

Client Sample ID			CSM_BH09S	CSM_BH10S	SRT_BH047	SRT_BH052
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se03059	M19-Se03060	M19-Se03061	M19-Se03062
Date Sampled			Aug 28, 2019	Aug 29, 2019	Aug 30, 2019	Aug 30, 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-C36 (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	%	90	104	117	122
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	%	84	67	65	97
p-Terphenyl-d14 (surr.)	1	%	86	66	66	100
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			CSM_BH09S	CSM_BH10S	SRT_BH047	SRT_BH052
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se03059	M19-Se03060	M19-Se03061	M19-Se03062
Date Sampled			Aug 28, 2019	Aug 29, 2019	Aug 30, 2019	Aug 30, 2019
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	%	81	62	64	94
Tetrachloro-m-xylene (surr.)	1	%	84	64	65	99
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			CSM_BH09S	CSM_BH10S	SRT_BH047	SRT_BH052
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se03059	M19-Se03060	M19-Se03061	M19-Se03062
Date Sampled			Aug 28, 2019	Aug 29, 2019	Aug 30, 2019	Aug 30, 2019
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	%	98	62	62	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	%	81	62	64	94
Tetrachloro-m-xylene (surr.)	1	%	84	64	65	99
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	0.14	< 0.003	< 0.003	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	0.14	< 0.1	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	62	45	35	59
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			CSM_BH09S	CSM_BH10S	SRT_BH047	SRT_BH052
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se03059	M19-Se03060	M19-Se03061	M19-Se03062
Date Sampled			Aug 28, 2019	Aug 29, 2019	Aug 30, 2019	Aug 30, 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	< 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	0.04	< 0.01	< 0.01	< 0.01
Chloride	1	mg/L	49	19	22	38
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.05	mg/L	4.6	< 0.05	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	2.0	22	6.7
pH (at 25°C)	0.1	pH Units	6.8	6.1	8.1	7.8
Sulphate (as SO4)	5	mg/L	160	57	10	30
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	440	240	360	330
Total Suspended Solids Dried at 103–105°C	1	mg/L	87	170	51	160
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	61	20	120	110
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	5.1	3.9	50	36
Magnesium	0.5	mg/L	6.6	5.5	8.6	6.8
Potassium	0.5	mg/L	3.6	2.9	0.9	1.8
Sodium	0.5	mg/L	110	39	33	45
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	0.002
Copper (filtered)	0.001	mg/L	0.001	0.004	0.003	0.003
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.65	0.48	< 0.005	< 0.005
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.008	0.002	< 0.001	< 0.001
Zinc (filtered)	0.005	mg/L	0.045	0.014	0.008	0.010

Client Sample ID			SRT_BH059	SRT_BH063	SRT_CBH015	SRT_CBH017
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se03063	M19-Se03064	M19-Se03065	M19-Se03066
Date Sampled			Aug 30, 2019	Aug 28, 2019	Aug 30, 2019	Aug 30, 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	0.3	0.2
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	0.3	0.2

Client Sample ID			SRT_BH059	SRT_BH063	SRT_CBH015	SRT_CBH017
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se03063	M19-Se03064	M19-Se03065	M19-Se03066
Date Sampled			Aug 30, 2019	Aug 28, 2019	Aug 30, 2019	Aug 30, 2019
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	0.3	0.2
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	0.3	0.2
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	%	127	107	106	110
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	%	60	60	91	91
p-Terphenyl-d14 (surr.)	1	%	58	59	93	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
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_BH059	SRT_BH063	SRT_CBH015	SRT_CBH017
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se03063	M19-Se03064	M19-Se03065	M19-Se03066
Date Sampled			Aug 30, 2019	Aug 28, 2019	Aug 30, 2019	Aug 30, 2019
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	%	54	54	89	82
Tetrachloro-m-xylene (surr.)	1	%	59	60	94	88
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	%	58	56	88	90

Client Sample ID			SRT_BH059	SRT_BH063	SRT_CBH015	SRT_CBH017
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se03063	M19-Se03064	M19-Se03065	M19-Se03066
Date Sampled			Aug 30, 2019	Aug 28, 2019	Aug 30, 2019	Aug 30, 2019
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	%	54	54	89	82
Tetrachloro-m-xylene (surr.)	1	%	59	60	94	88
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	%	39	40	68	61
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	0.2	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	8.0	66	9.5	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	3.5	0.34	2.3	0.32
pH (at 25°C)	0.1	pH Units	7.9	7.8	6.3	7.0

Client Sample ID			SRT_BH059	SRT_BH063	SRT_CBH015	SRT_CBH017
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se03063	M19-Se03064	M19-Se03065	M19-Se03066
Date Sampled			Aug 30, 2019	Aug 28, 2019	Aug 30, 2019	Aug 30, 2019
Test/Reference	LOR	Unit				
Sulphate (as SO4)	5	mg/L	15	50	49	26
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	290	470	180	180
Total Suspended Solids Dried at 103–105°C	1	mg/L	13	56	10	3.8
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	170	310	25	67
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	60	55	2.7	12
Magnesium	0.5	mg/L	6.4	35	5.7	9.6
Potassium	0.5	mg/L	6.7	5.8	4.0	3.4
Sodium	0.5	mg/L	11	68	23	19
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	0.028	0.010	0.002	0.005
Lead (filtered)	0.001	mg/L	0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	< 0.005	0.017	6.5	0.38
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.012	0.007	0.009	0.004
Zinc (filtered)	0.005	mg/L	0.12	0.032	0.025	0.014

Client Sample ID			QC02	RB01	TRIP BLANK	[R20]TRIP SPIKE
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se03067	M19-Se03068	M19-Se03069	M19-Se03070
Date Sampled			Aug 30, 2019	Aug 29, 2019	Aug 28, 2019	Aug 28, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	-	< 0.01	120
TRH C6-C10	0.02	mg/L	< 0.02	-	< 0.02	110
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	-	< 0.02	-
TRH >C10-C16	0.05	mg/L	< 0.05	-	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	-	-	-
TRH >C16-C34	0.1	mg/L	< 0.1	-	-	-
TRH >C34-C40	0.1	mg/L	< 0.1	-	-	-
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	-	-	-
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	-	< 0.02	96
TRH C10-C14	0.05	mg/L	< 0.05	-	-	-
TRH C15-C28	0.1	mg/L	< 0.1	-	-	-
TRH C29-C36	0.1	mg/L	< 0.1	-	-	-
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	-	-	-
BTEX						
Benzene	0.001	mg/L	< 0.001	-	< 0.001	110
Toluene	0.001	mg/L	< 0.001	-	< 0.001	110
Ethylbenzene	0.001	mg/L	< 0.001	-	< 0.001	120
m&p-Xylenes	0.002	mg/L	< 0.002	-	< 0.002	120

Client Sample ID			QC02	RB01	TRIP BLANK	[R20]TRIP SPIKE
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se03067	M19-Se03068	M19-Se03069	M19-Se03070
Date Sampled			Aug 30, 2019	Aug 29, 2019	Aug 28, 2019	Aug 28, 2019
Test/Reference	LOR	Unit				
BTEX						
o-Xylene	0.001	mg/L	< 0.001	-	< 0.001	120
Xylenes - Total	0.003	mg/L	< 0.003	-	< 0.003	120
4-Bromofluorobenzene (surr.)	1	%	105	-	144	123
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	%	71	-	-	-
p-Terphenyl-d14 (surr.)	1	%	90	-	-	-
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	< 0.001	-	-	-
Copper	0.001	mg/L	-	< 0.001	-	-
Copper (filtered)	0.001	mg/L	0.002	-	-	-
Lead	0.001	mg/L	-	< 0.001	-	-
Lead (filtered)	0.001	mg/L	< 0.001	-	-	-
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	0.009	-	-	-
Zinc	0.005	mg/L	-	< 0.005	-	-
Zinc (filtered)	0.005	mg/L	0.026	-	-	-

Client Sample ID			GASW_BH7	[G01]GASW_BH10	GASW_BH11
Sample Matrix			Water	Water	Water
Eurofins Sample No.			M19-Se03071	M19-Se03072	M19-Se03073
Date Sampled			Aug 28, 2019	Aug 28, 2019	Aug 28, 2019
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.04	< 0.01
TRH C6-C10	0.02	mg/L	0.05	< 0.08	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	0.02	< 0.08	< 0.02
TRH >C10-C16	0.05	mg/L	0.45	0.31	0.27
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	0.45	0.31	0.27
TRH >C16-C34	0.1	mg/L	0.2	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	0.65	0.41	0.27
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	0.02	mg/L	0.05	< 0.08	< 0.02
TRH C10-C14	0.05	mg/L	0.29	0.26	0.27
TRH C15-C28	0.1	mg/L	0.4	0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	0.69	0.36	0.27
BTEX					
Benzene	0.001	mg/L	0.027	< 0.004	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.004	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.004	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.008	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.004	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.012	< 0.003
4-Bromofluorobenzene (surr.)	1	%	99	112	108
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	103	114
p-Terphenyl-d14 (surr.)	1	%	79	111	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

Client Sample ID			GASW_BH7	G01 GASW_BH10	GASW_BH11
Sample Matrix			Water	Water	Water
Eurofins Sample No.			M19-Se03071	M19-Se03072	M19-Se03073
Date Sampled			Aug 28, 2019	Aug 28, 2019	Aug 28, 2019
Test/Reference	LOR	Unit			
Organochlorine Pesticides					
Aldrin	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
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	%	76	108	104
Tetrachloro-m-xylene (surr.)	1	%	80	105	108
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

Client Sample ID			GASW_BH7	G01 GASW_BH10	GASW_BH11
Sample Matrix			Water	Water	Water
Eurofins Sample No.			M19-Se03071	M19-Se03072	M19-Se03073
Date Sampled			Aug 28, 2019	Aug 28, 2019	Aug 28, 2019
Test/Reference	LOR	Unit			
Organophosphorus Pesticides					
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002
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	%	76	108	113
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	%	76	108	104
Tetrachloro-m-xylene (surr.)	1	%	80	105	108
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	%	58	69	82
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	0.14
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			GASW_BH7	G01 GASW_BH10	GASW_BH11
Sample Matrix			Water	Water	Water
Eurofins Sample No.			M19-Se03071	M19-Se03072	M19-Se03073
Date Sampled			Aug 28, 2019	Aug 28, 2019	Aug 28, 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	0.18
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	0.18
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	0.03	0.16	0.01
Chloride	1	mg/L	29	170	39
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.05	mg/L	19	4.2	1.2
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02
pH (at 25°C)	0.1	pH Units	3.5	7.7	6.6
Sulphate (as SO4)	5	mg/L	150	< 5	48
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	330	1100	250
Total Suspended Solids Dried at 103–105°C	1	mg/L	14	260	22
Alkalinity (speciated)					
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	< 20	440	55
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10
Alkali Metals					
Calcium	0.5	mg/L	3.7	41	5.3
Magnesium	0.5	mg/L	4.8	40	7.1
Potassium	0.5	mg/L	0.7	29	1.7
Sodium	0.5	mg/L	64	150	52
Heavy Metals					
Arsenic (filtered)	0.001	mg/L	< 0.001	0.002	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.019	< 0.001	0.003
Lead (filtered)	0.001	mg/L	0.002	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.13	0.32	0.23
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.006	0.043	0.002
Zinc (filtered)	0.005	mg/L	0.078	0.029	0.016

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.

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 05, 2019	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Melbourne	Sep 05, 2019	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Sep 05, 2019	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Sep 05, 2019	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Eurofins | mgt Suite B7A (filtered metals)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Sep 05, 2019	
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Sep 05, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Melbourne	Sep 05, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Sep 05, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8 filtered	Melbourne	Sep 05, 2019	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins | mgt Suite B15			
Organochlorine Pesticides	Melbourne	Sep 05, 2019	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270)			
Organophosphorus Pesticides	Melbourne	Sep 05, 2019	7 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS (USEPA 8081)			
Polychlorinated Biphenyls	Melbourne	Sep 05, 2019	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8082)			
TRH - 2013 NEPM Fractions (after silica gel clean-up)	Melbourne	Sep 05, 2019	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
TRH - 1999 NEPM Fractions (after silica gel clean-up)	Melbourne	Sep 05, 2019	7 Days
- Method: TRH C6-C36 (Silica Gel Cleanup) - MGT 100A			
Major Cations			
Ammonia (as N)	Melbourne	Sep 05, 2019	28 Days
- Method: LTM-INO-4200 Ammonia by Discrete Analyser			
Alkali Metals	Melbourne	Sep 05, 2019	180 Days
- Method: LTM-MET-3010 Alkali Metals S Si and P by ICP-AES			
Major Anions			
Chloride	Melbourne	Sep 05, 2019	28 Days
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Nitrate (as N)	Melbourne	Sep 05, 2019	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Sulphate (as SO4)	Melbourne	Sep 05, 2019	28 Days
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Sep 05, 2019	14 Days
- Method: LTM-INO-4250 Alkalinity by Electrometric Titration			
Cyanide (total)	Melbourne	Sep 05, 2019	14 Days
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Ferrous Iron - Fe2+	Melbourne	Sep 05, 2019	7 Days
- Method: LTM-INO-4190 Ferrous Iron in Water by Discrete Analyser			
pH (at 25°C)	Melbourne	Sep 05, 2019	0 Hours
- Method: LTM-GEN-7090 pH in water by ISE			

Description	Testing Site	Extracted	Holding Time
Total Dissolved Solids Dried at 180°C ± 2°C	Melbourne	Sep 05, 2019	7 Days
- Method: LTM-INO-4170 Total Dissolved Solids in Water			
Total Suspended Solids Dried at 103–105°C	Melbourne	Sep 06, 2019	7 Days
- Method: LTM-INO-4070 Analysis of Suspended Solids in Water by Gravimetry			
Metals M8	Melbourne	Sep 05, 2019	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Heavy Metals (filtered)	Melbourne	Sep 05, 2019	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

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Project ID: 21-27234

Order No.:
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Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Aug 30, 2019 3:20 PM
Due: Sep 6, 2019
Priority: 5 Day
Contact Name: Henry Luo

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	pH (at 25°C)	Total Dissolved Solids Dried at 180°C ± 2°C	Total Suspended Solids Dried at 103–105°C	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	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	CSM_BH02	Aug 29, 2019		Water	M19-Se03055	X	X	X	X	X	X		X	X	X	X		X	
2	CSM_BH04	Aug 29, 2019		Water	M19-Se03056	X	X	X	X	X	X		X	X	X	X		X	
3	CSM_BH06	Aug 28, 2019		Water	M19-Se03057	X	X	X	X	X	X		X	X	X	X		X	
4	CSM_BH08	Aug 29, 2019		Water	M19-Se03058	X	X	X	X	X	X		X	X	X	X		X	
5	CSM_BH09S	Aug 28, 2019		Water	M19-Se03059	X	X	X	X	X	X		X	X	X	X		X	
6	CSM_BH10S	Aug 29, 2019		Water	M19-Se03060	X	X	X	X	X	X		X	X	X	X		X	
7	SRT_BH047	Aug 30, 2019		Water	M19-Se03061	X	X	X	X	X	X		X	X	X	X		X	
8	SRT_BH052	Aug 30, 2019		Water	M19-Se03062	X	X	X	X	X	X		X	X	X	X		X	
9	SRT_BH059	Aug 30, 2019		Water	M19-Se03063	X	X	X	X	X	X		X	X	X	X		X	

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NSW 2000

Project Name: CENTRAL
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Sample Detail						Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	pH (at 25°C)	Total Dissolved Solids Dried at 180°C ± 2°C	Total Suspended Solids Dried at 103–105°C	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	X	X	X
Sydney Laboratory - NATA Site # 18217																			
Brisbane Laboratory - NATA Site # 20794																			
Perth Laboratory - NATA Site # 23736																			
10	SRT_BH063	Aug 28, 2019		Water	M19-Se03064	X	X	X	X	X	X		X	X	X	X		X	
11	SRT_CBH015	Aug 30, 2019		Water	M19-Se03065	X	X	X	X	X	X		X	X	X	X		X	
12	SRT_CBH017	Aug 30, 2019		Water	M19-Se03066	X	X	X	X	X	X		X	X	X	X		X	
13	QC02	Aug 30, 2019		Water	M19-Se03067												X		
14	RB01	Aug 29, 2019		Water	M19-Se03068							X							
15	TRIP BLANK	Aug 28, 2019		Water	M19-Se03069														X
16	TRIP SPIKE	Aug 28, 2019		Water	M19-Se03070														X
17	GASW_BH7	Aug 28, 2019		Water	M19-Se03071	X	X	X	X	X	X		X	X	X	X		X	
18	GASW_BH10	Aug 28, 2019		Water	M19-Se03072	X	X	X	X	X	X		X	X	X	X		X	
19	GASW_BH11	Aug 28, 2019		Water	M19-Se03073	X	X	X	X	X	X		X	X	X	X		X	
Test Counts						15	15	15	15	15	15	1	15	15	15	15	1	15	2

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

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

Units

mg/kg: milligrams per kilogram | **mg/L:** milligrams per litre | **ug/L:** micrograms per litre

ppm: Parts per million | **ppb:** Parts per billion | **%:** Percentage

org/100mL: Organisms per 100 millilitres | **NTU:** Nephelometric Turbidity Units | **MPN/100mL:** Most Probable Number of organisms per 100 millilitres

Terms

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

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 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	
Total Dissolved Solids Dried at 180°C ± 2°C	mg/L	< 10			10	Pass	
Total Suspended Solids Dried at 103–105°C	mg/L	< 1			1	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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	%	121			70-130	Pass	
TRH C6-C10	%	124			70-130	Pass	
TRH >C10-C16	%	88			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	128			70-130	Pass	
TRH C10-C14	%	96			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	102			70-130	Pass	
Toluene	%	100			70-130	Pass	
Ethylbenzene	%	116			70-130	Pass	
m&p-Xylenes	%	116			70-130	Pass	
Xylenes - Total	%	119			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	98			70-130	Pass	
Acenaphthylene	%	91			70-130	Pass	
Anthracene	%	82			70-130	Pass	
Benz(a)anthracene	%	88			70-130	Pass	
Benzo(a)pyrene	%	89			70-130	Pass	
Benzo(b&j)fluoranthene	%	87			70-130	Pass	
Benzo(g.h.i)perylene	%	83			70-130	Pass	
Benzo(k)fluoranthene	%	103			70-130	Pass	
Chrysene	%	109			70-130	Pass	
Dibenz(a.h)anthracene	%	80			70-130	Pass	
Fluoranthene	%	91			70-130	Pass	
Fluorene	%	96			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	73			70-130	Pass	
Naphthalene	%	93			70-130	Pass	
Phenanthrene	%	99			70-130	Pass	
Pyrene	%	95			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	96			70-130	Pass	
4.4'-DDD	%	100			70-130	Pass	
4.4'-DDE	%	107			70-130	Pass	
4.4'-DDT	%	98			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
a-BHC	%	102			70-130	Pass	
Aldrin	%	100			70-130	Pass	
b-BHC	%	89			70-130	Pass	
d-BHC	%	84			70-130	Pass	
Dieldrin	%	105			70-130	Pass	
Endosulfan I	%	100			70-130	Pass	
Endosulfan II	%	110			70-130	Pass	
Endosulfan sulphate	%	99			70-130	Pass	
Endrin	%	85			70-130	Pass	
Endrin aldehyde	%	126			70-130	Pass	
Endrin ketone	%	94			70-130	Pass	
g-BHC (Lindane)	%	106			70-130	Pass	
Heptachlor	%	92			70-130	Pass	
Heptachlor epoxide	%	108			70-130	Pass	
Hexachlorobenzene	%	105			70-130	Pass	
Methoxychlor	%	96			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	98			70-130	Pass	
Dimethoate	%	74			70-130	Pass	
Ethion	%	82			70-130	Pass	
Fenitrothion	%	86			70-130	Pass	
Methyl parathion	%	85			70-130	Pass	
Mevinphos	%	86			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	114			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	81			30-130	Pass	
2.4-Dichlorophenol	%	79			30-130	Pass	
2.4.5-Trichlorophenol	%	71			30-130	Pass	
2.4.6-Trichlorophenol	%	70			30-130	Pass	
2.6-Dichlorophenol	%	88			30-130	Pass	
4-Chloro-3-methylphenol	%	73			30-130	Pass	
Pentachlorophenol	%	49			30-130	Pass	
Tetrachlorophenols - Total	%	106			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	70			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	50			30-130	Pass	
2-Methylphenol (o-Cresol)	%	63			30-130	Pass	
2-Nitrophenol	%	88			30-130	Pass	
2.4-Dimethylphenol	%	76			30-130	Pass	
2.4-Dinitrophenol	%	43			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	57			30-130	Pass	
4-Nitrophenol	%	101			30-130	Pass	
Dinoseb	%	59			30-130	Pass	
Phenol	%	43			30-130	Pass	
LCS - % Recovery							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	%	106			70-130	Pass	
LCS - % Recovery							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C10-C14 (after silica gel clean-up)	%	113			70-130	Pass	
LCS - % Recovery							
Ammonia (as N)	%	100			70-130	Pass	
Chloride	%	125			70-130	Pass	
Cyanide (total)	%	108			70-130	Pass	
Ferrous Iron - Fe2+	%	96			70-130	Pass	
Nitrate (as N)	%	100			70-130	Pass	
Sulphate (as SO4)	%	124			70-130	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	%	97			70-130	Pass	
Total Suspended Solids Dried at 103–105°C	%	102			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO3)	%	93			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	100			70-130	Pass	
Magnesium	%	94			70-130	Pass	
Potassium	%	105			70-130	Pass	
Sodium	%	103			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	97			80-120	Pass	
Cadmium	%	103			80-120	Pass	
Chromium	%	100			80-120	Pass	
Copper	%	101			80-120	Pass	
Lead	%	97			80-120	Pass	
Mercury	%	100			75-125	Pass	
Nickel	%	96			80-120	Pass	
Zinc	%	103			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	P19-Au43550	NCP	%	111			70-130	Pass	
TRH C6-C10	P19-Au43550	NCP	%	121			70-130	Pass	
TRH >C10-C16	M19-Se04638	NCP	%	78			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	P19-Au43550	NCP	%	127			70-130	Pass	
TRH C10-C14	M19-Se04638	NCP	%	84			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	P19-Au43550	NCP	%	93			70-130	Pass	
Toluene	P19-Au43550	NCP	%	98			70-130	Pass	
Ethylbenzene	P19-Au43550	NCP	%	104			70-130	Pass	
m&p-Xylenes	P19-Au43550	NCP	%	91			70-130	Pass	
o-Xylene	P19-Au43550	NCP	%	103			70-130	Pass	
Xylenes - Total	P19-Au43550	NCP	%	95			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M19-Se05393	NCP	%	114			70-130	Pass	
Acenaphthylene	M19-Se05393	NCP	%	117			70-130	Pass	
Anthracene	M19-Se05393	NCP	%	116			70-130	Pass	
Benz(a)anthracene	M19-Se05393	NCP	%	113			70-130	Pass	
Benzo(a)pyrene	M19-Se05393	NCP	%	109			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(b&j)fluoranthene	M19-Se05393	NCP	%	109			70-130	Pass	
Benzo(g.h.i)perylene	M19-Se05393	NCP	%	100			70-130	Pass	
Benzo(k)fluoranthene	M19-Se05393	NCP	%	116			70-130	Pass	
Chrysene	M19-Se05393	NCP	%	122			70-130	Pass	
Dibenz(a.h)anthracene	M19-Se05393	NCP	%	93			70-130	Pass	
Fluoranthene	M19-Se05393	NCP	%	113			70-130	Pass	
Fluorene	M19-Se05393	NCP	%	118			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M19-Se05393	NCP	%	96			70-130	Pass	
Naphthalene	M19-Se05393	NCP	%	117			70-130	Pass	
Phenanthrene	M19-Se05393	NCP	%	117			70-130	Pass	
Pyrene	M19-Se05393	NCP	%	113			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M19-Se05393	NCP	%	89			30-130	Pass	
2.4-Dichlorophenol	M19-Se05393	NCP	%	86			30-130	Pass	
2.4.5-Trichlorophenol	M19-Se05393	NCP	%	128			30-130	Pass	
2.4.6-Trichlorophenol	M19-Se05393	NCP	%	121			30-130	Pass	
2.6-Dichlorophenol	M19-Se05393	NCP	%	88			30-130	Pass	
4-Chloro-3-methylphenol	M19-Se05393	NCP	%	90			30-130	Pass	
Pentachlorophenol	M19-Se05393	NCP	%	106			30-130	Pass	
Tetrachlorophenols - Total	M19-Se05393	NCP	%	123			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M19-Se05393	NCP	%	75			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M19-Se05393	NCP	%	120			30-130	Pass	
2-Methylphenol (o-Cresol)	M19-Se05393	NCP	%	87			30-130	Pass	
2-Nitrophenol	M19-Se05393	NCP	%	93			30-130	Pass	
2.4-Dimethylphenol	M19-Se05393	NCP	%	91			30-130	Pass	
2.4-Dinitrophenol	M19-Se05393	NCP	%	111			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Se05393	NCP	%	85			30-130	Pass	
4-Nitrophenol	M19-Se05393	NCP	%	108			30-130	Pass	
Dinoseb	M19-Se05393	NCP	%	102			30-130	Pass	
Phenol	M19-Se05393	NCP	%	80			30-130	Pass	
Spike - % Recovery									
				Result 1					
Cyanide (total)	M19-Se05403	NCP	%	105			70-130	Pass	
Ferrous Iron - Fe2+	M19-Se03055	CP	%	115			70-130	Pass	
Spike - % Recovery									
Alkalinity (speciated)				Result 1					
Bicarbonate Alkalinity (as CaCO3)	M19-Se02869	NCP	%	97			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M19-Se02874	NCP	%	97			70-130	Pass	
Cadmium (filtered)	M19-Se02874	NCP	%	95			70-130	Pass	
Chromium (filtered)	M19-Se02874	NCP	%	91			70-130	Pass	
Copper (filtered)	M19-Se02874	NCP	%	91			70-130	Pass	
Lead (filtered)	M19-Se02874	NCP	%	89			70-130	Pass	
Manganese (filtered)	M19-Se02874	NCP	%	95			70-130	Pass	
Mercury (filtered)	M19-Se02874	NCP	%	82			70-130	Pass	
Nickel (filtered)	M19-Se02874	NCP	%	94			70-130	Pass	
Zinc (filtered)	M19-Se02874	NCP	%	113			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M19-Se03057	CP	%	95			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Magnesium	M19-Se03057	CP	%	95			70-130	Pass	
Potassium	M19-Se03057	CP	%	95			70-130	Pass	
Sodium	M19-Se03057	CP	%	100			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M19-Se03060	CP	%	96			70-130	Pass	
Chloride	M19-Se03060	CP	%	107			70-130	Pass	
Nitrate (as N)	M19-Se03060	CP	%	90			70-130	Pass	
Sulphate (as SO4)	M19-Se03060	CP	%	100			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ferrous Iron - Fe2+	M19-Se03065	CP	%	102			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S19-Se01916	NCP	%	87			75-125	Pass	
Cadmium	S19-Se01916	NCP	%	93			75-125	Pass	
Chromium	S19-Se01916	NCP	%	89			75-125	Pass	
Copper	S19-Se01916	NCP	%	90			75-125	Pass	
Lead	S19-Se01916	NCP	%	91			75-125	Pass	
Mercury	S19-Se01916	NCP	%	94			70-130	Pass	
Nickel	S19-Se01916	NCP	%	84			75-125	Pass	
Zinc	S19-Se01916	NCP	%	91			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	P19-Au43549	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	P19-Au43549	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	M19-Se04639	NCP	mg/L	0.16	0.16	1.0	30%	Pass	
TRH >C16-C34	M19-Se04639	NCP	mg/L	0.9	0.9	3.0	30%	Pass	
TRH >C34-C40	M19-Se04639	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	P19-Au43549	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	M19-Se04639	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M19-Se04639	NCP	mg/L	1.0	1.0	3.0	30%	Pass	
TRH C29-C36	M19-Se04639	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	P19-Au43549	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	P19-Au43549	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	P19-Au43549	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	P19-Au43549	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	P19-Au43549	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	P19-Au43549	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M19-Au44469	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	M19-Au44469	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	M19-Au44469	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	M19-Au44469	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	M19-Au44469	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M19-Au44469	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	M19-Au44469	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	M19-Au44469	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Chrysene	M19-Au44469	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	M19-Au44469	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	M19-Au44469	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	M19-Au44469	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M19-Au44469	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	M19-Au44469	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	M19-Au44469	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	M19-Au44469	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M19-Au44469	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4.4'-DDD	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDE	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDT	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
a-BHC	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Aldrin	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
b-BHC	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
d-BHC	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Dieldrin	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan I	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan II	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan sulphate	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin aldehyde	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin ketone	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
g-BHC (Lindane)	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor epoxide	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Hexachlorobenzene	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Methoxychlor	M19-Au44469	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Bolstar	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorfenvinphos	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorpyrifos	M19-Au44469	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Chlorpyrifos-methyl	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Coumaphos	M19-Au44469	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-S	M19-Au44469	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-O	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Diazinon	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dichlorvos	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dimethoate	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Disulfoton	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
EPN	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethion	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethoprop	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethyl parathion	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenitrothion	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fensulfothion	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenthion	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Malathion	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Merphos	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methyl parathion	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Mevinphos	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Monocrotophos	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Naled	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Omethoate	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Phorate	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Pirimiphos-methyl	M19-Au44469	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Pyrazophos	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ronnel	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Terbufos	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tetrachlorvinphos	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tokuthion	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Trichloronate	M19-Au44469	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M19-Au44469	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dichlorophenol	M19-Au44469	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4.5-Trichlorophenol	M19-Au44469	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	M19-Au44469	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	M19-Au44469	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
4-Chloro-3-methylphenol	M19-Au44469	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Pentachlorophenol	M19-Au44469	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Tetrachlorophenols - Total	M19-Au44469	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M19-Au44469	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M19-Au44469	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M19-Au44469	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Nitrophenol	M19-Au44469	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dimethylphenol	M19-Au44469	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	M19-Au44469	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Au44469	NCP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
4-Nitrophenol	M19-Au44469	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Dinoseb	M19-Au44469	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Phenol	M19-Au44469	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ferrous Iron - Fe2+	M19-Se03055	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
pH (at 25°C)	M19-Se03055	CP	pH Units	7.9	7.9	pass	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M19-Se03055	CP	mg/L	320	320	2.0	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M19-Se03055	CP	mg/L	< 10	< 10	<1	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M19-Se03057	CP	mg/L	41	41	1.0	30%	Pass	
Magnesium	M19-Se03057	CP	mg/L	34	34	<1	30%	Pass	
Potassium	M19-Se03057	CP	mg/L	5.2	5.1	1.0	30%	Pass	
Sodium	M19-Se03057	CP	mg/L	110	110	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M19-Se03060	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Chloride	M19-Se03060	CP	mg/L	19	20	3.0	30%	Pass	
Nitrate (as N)	M19-Se03060	CP	mg/L	2.0	2.0	1.0	30%	Pass	
Sulphate (as SO4)	M19-Se03060	CP	mg/L	57	60	4.0	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
Total Suspended Solids Dried at 103–105°C	M19-Se03061	CP	mg/L	51	54	5.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M19-Se03063	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	M19-Se03063	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M19-Se03063	CP	mg/L	0.001	0.001	3.0	30%	Pass	
Copper (filtered)	M19-Se03063	CP	mg/L	0.028	0.026	4.0	30%	Pass	
Lead (filtered)	M19-Se03063	CP	mg/L	0.001	0.001	2.0	30%	Pass	
Manganese (filtered)	M19-Se03063	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Mercury (filtered)	M19-Se03063	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M19-Se03063	CP	mg/L	0.012	0.011	5.0	30%	Pass	
Zinc (filtered)	M19-Se03063	CP	mg/L	0.12	0.12	4.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Total Dissolved Solids Dried at 180°C ± 2°C	M19-Se03064	CP	mg/L	470	520	10	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ferrous Iron - Fe2+	M19-Se03065	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
pH (at 25°C)	M19-Se03065	CP	pH Units	6.3	6.3	pass	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M19-Se03065	CP	mg/L	25	24	2.0	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M19-Se03065	CP	mg/L	< 10	< 10	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S19-Se01916	NCP	mg/L	0.002	0.002	8.0	30%	Pass	
Cadmium	S19-Se01916	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	S19-Se01916	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	S19-Se01916	NCP	mg/L	0.001	0.001	1.0	30%	Pass	
Lead	S19-Se01916	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	S19-Se01916	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	S19-Se01916	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc	S19-Se01916	NCP	mg/L	0.007	0.007	3.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Cyanide (total)	M19-Se03073	CP	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
G01	The LORs have been raised due to matrix interference
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
R20	This sample is a Trip Spike and therefore all results are reported as a percentage

Authorised By

Alena Bounkeua	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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Email: enviro.syd@mgtlabmark.com.au

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Phone: +617 3902 4600
Email: enviro.bris@mgtlabmark.com.au

☐ Melbourne
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	Contact Name : Terry Nham / Thomas Frederick	Purchase Order :	COC Number :
Office Address :	Project Manager : Henry Luo	PROJECT Number : 21-27234	Eurofins | mgt quote ID : GHD Rates 2019
Level 15, 133 Castlereagh Street, Sydney NSW 2000	Email for results : terry.nham@ghd.com henry.luo@ghd.com thomas.frederick@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 (Dissolved), 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 (Total)	TRH, BTEX, PAH, 8 Metals (Dissolved) (B7)	Ferrous Iron	Manganese	pH	TDS	TSS
1	CSM_BH02	26/9/19	Water	X	X	X	X	X	X				X	X	X	X	X
2	CSM_BH04	26/9/19	Water	X	X	X	X	X	X				X	X	X	X	X
3	~~CSM_BH05~~		~~Water~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~				~~X~~	~~X~~	~~X~~	~~X~~	~~X~~
4	CSM_BH06	26/9/19	Water	X	X	X	X	X	X				X	X	X	X	X
5	CSM_BH08	26/9/19	Water	X	X	X	X	X	X				X	X	X	X	X
6	CSM_BH09S	25/9/19	Water	X	X	X	X	X	X				X	X	X	X	X
7	CSM_BH10S	25/9/19	Water	X	X	X	X	X	X				X	X	X	X	X
8	SRT_BH047	27/9/19	Water	X	X	X	X	X	X				X	X	X	X	X
9	SRT_BH052	27/9/19	Water	X	X	X	X	X	X				X	X	X	X	X
10	SRT_BH059	27/9/19	Water	X	X	X	X	X	X				X	X	X	X	X
11	~~SRT_BH069~~		~~Water~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~				~~X~~	~~X~~	~~X~~	~~X~~	~~X~~
12	SRT_CBH015	27/9/19	Water	X	X	X	X	X	X				X	X	X	X	X
13	SRT_CBH017	27/9/19	Water	X	X	X	X	X	X				X	X	X	X	X
14	~~QC01~~		~~Water~~	RLs ~~NOT~~ SUITABLE TO RLs ATTACHED COC													
15	QC02	27/9/19	Water									X					
16	RB01	26/9/19	Water								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	60P	1LA	40mL vial	200mL A	Jar	Bag
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		4		2	2		
10	1		4		2	2		
11	~~1~~		~~4~~		~~2~~	~~2~~		
12	1		4		2	2		
13	1		4		2	2		
14	~~1~~		~~4~~		~~2~~	~~2~~		
15	1		4		2	2		
16			1					

Sample comments:

Laboratory Staff

Relinquished By: Terry Nham - GHD
Date & Time : 27/9/2019
Signature:

Received By: Rupam
Date & Time : 27/09 3:52 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: 14.0°C

Report number: 679636

Carlene
ET

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : GHD Pty Ltd, Sydney	Contact Name : Terry Nham / Thomas Frederick	Purchase Order :	COC Number :
Office Address :	Project Manager : Henry Luo	PROJECT Number : 21-27234	Eurofins | mgt quote ID : GHD Rates 2019
Level 15, 133 Castlereagh Street, Sydney NSW 2000	Email for results : terry.nham@ghd.com henry.luo@ghd.com thomas.frederick@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 (Dissolved), 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 (Total)	(TRH, BTEX, PAH, 8 Metals (Dissolved), Phenols (Suite B7A))	Ferrous Iron	Manganese	pH	TDS	TSS
1	Trip Blank	25/9/19	Water							X							
2	Trip Spike	25/9/19	Water							X							
3	GASW_BH7	25/9/19	Water	X	X	X	X	X	X				X	X	X	X	X
4	GASW_BH10	26/9/19	Water	X	X	X	X	X	X				X	X	X	X	X
5	GASW_BH11	25/9/19	Water	X	X	X	X	X	X				X	X	X	X	X
6	GASW_BH23	25/9/19	Water	X	X	X	X	X	X				X	X	X	X	X
7	GASW_BH25a	25/9/19	Water	X	X	X	X	X	X				X	X	X	X	X
8																	
9																	
10																	
11																	
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
				2			
				2			
1		4		2	2		
1		4		2	2		
1		4		2	2		
1		4		2	2		
1		4		2	2		

Sample comments:

Laboratory Staff

Relinquished By: Terry Nham - GHD
Date & Time : 27/9/19
Signature:

Received By: Priyam
Date & Time : 27/9/19 3:52PM
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: 679636

Courier
EF

Melbourne
6 Monterey Road
Dandenong South Vic 3175
Phone : +61 3 8564 5000
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Site # 1254 & 14271

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Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**GHD Pty Ltd NSW**
Contact name:	Henry Luo
Project name:	CENTRAL
Project ID:	21-27234
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Sep 27, 2019 3:52 PM
Eurofins reference:	**679636**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins Sample Receipt : 1.4 degrees Celsius.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☑ Sample containers for volatile analysis received with zero headspace.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Alena Bounkeua on Phone : or by e.mail: AlenaBounkeua@eurofins.com

Results will be delivered electronically via e.mail to Henry Luo - henry.luo@ghd.com.

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 **679636-W**
Project name CENTRAL
Project ID 21-27234
Received Date Sep 27, 2019

Client Sample ID			**CSM_BH02**	**CSM_BH04**	**CSM_BH06**	**CSM_BH08**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**M19-Se42631**	**M19-Se42632**	**M19-Se42633**	**M19-Se42634**
Date Sampled			**Sep 26, 2019**	**Sep 26, 2019**	**Sep 26, 2019**	**Sep 26, 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-C36 (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	0.001	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	84	73	86
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			CSM_BH02	CSM_BH04	CSM_BH06	CSM_BH08
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42631	M19-Se42632	M19-Se42633	M19-Se42634
Date Sampled			Sep 26, 2019	Sep 26, 2019	Sep 26, 2019	Sep 26, 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	%	66	108	66	64
p-Terphenyl-d14 (surr.)	1	%	78	125	55	56
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	%	77	123	54	70
Tetrachloro-m-xylene (surr.)	1	%	70	113	55	73
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			CSM_BH02	CSM_BH04	CSM_BH06	CSM_BH08
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42631	M19-Se42632	M19-Se42633	M19-Se42634
Date Sampled			Sep 26, 2019	Sep 26, 2019	Sep 26, 2019	Sep 26, 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	%	89	143	71	68
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	%	77	123	54	70
Tetrachloro-m-xylene (surr.)	1	%	70	113	55	73
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			CSM_BH02	CSM_BH04	CSM_BH06	CSM_BH08
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42631	M19-Se42632	M19-Se42633	M19-Se42634
Date Sampled			Sep 26, 2019	Sep 26, 2019	Sep 26, 2019	Sep 26, 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	%	59	98	49	48
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	0.03	0.06	< 0.01	0.02
Chloride	1	mg/L	160	74	140	94
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.05	mg/L	1.2	0.10	0.59	6.2
Nitrate (as N)	0.02	mg/L	0.06	< 0.02	0.09	< 0.02
pH (at 25°C)	0.1	pH Units	7.8	8.5	6.9	7.2
Sulphate (as SO4)	5	mg/L	31	33	15	41
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	440	430	390	280
Total Suspended Solids Dried at 103–105°C	1	mg/L	3100	260	180	35
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	310	300	150	130
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	16	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	44	6.5	29	11
Magnesium	0.5	mg/L	37	11	22	17
Potassium	0.5	mg/L	4.8	3.1	4.4	3.1
Sodium	0.5	mg/L	110	150	71	78
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.002	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	0.007	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	< 0.001	0.043	0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.26	0.18	0.17	0.32
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.015	0.002	0.036	0.002
Zinc (filtered)	0.005	mg/L	0.011	< 0.005	0.094	0.014

Client Sample ID			CSM_BH09S	CSM_BH10S	SRT_BH047	SRT_BH052
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42635	M19-Se42636	M19-Se42637	M19-Se42638
Date Sampled			Sep 25, 2019	Sep 25, 2019	Sep 27, 2019	Sep 27, 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-C36 (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	%	84	84	72	63
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	%	73	111	85	87
p-Terphenyl-d14 (surr.)	1	%	55	69	97	94
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			CSM_BH09S	CSM_BH10S	SRT_BH047	SRT_BH052
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42635	M19-Se42636	M19-Se42637	M19-Se42638
Date Sampled			Sep 25, 2019	Sep 25, 2019	Sep 27, 2019	Sep 27, 2019
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	%	90	68	95	95
Tetrachloro-m-xylene (surr.)	1	%	102	71	92	98
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			CSM_BH09S	CSM_BH10S	SRT_BH047	SRT_BH052
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42635	M19-Se42636	M19-Se42637	M19-Se42638
Date Sampled			Sep 25, 2019	Sep 25, 2019	Sep 27, 2019	Sep 27, 2019
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	%	82	119	110	103
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	%	90	68	95	95
Tetrachloro-m-xylene (surr.)	1	%	102	71	92	98
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	%	62	89	65	36
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			CSM_BH09S	CSM_BH10S	SRT_BH047	SRT_BH052
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42635	M19-Se42636	M19-Se42637	M19-Se42638
Date Sampled			Sep 25, 2019	Sep 25, 2019	Sep 27, 2019	Sep 27, 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	< 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	0.03	< 0.01	< 0.01	< 0.01
Chloride	1	mg/L	56	20	25	38
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Ferrous Iron - Fe2+	0.05	mg/L	4.7	< 0.05	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	0.32	1.8	21	6.8
pH (at 25°C)	0.1	pH Units	6.6	6.6	7.7	7.8
Sulphate (as SO4)	5	mg/L	220	56	11	33
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	390	150	270	250
Total Suspended Solids Dried at 103–105°C	1	mg/L	49	140	22	58
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	49	25	140	140
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	6.4	3.9	51	26
Magnesium	0.5	mg/L	7.9	5.4	8.0	5.7
Potassium	0.5	mg/L	3.4	2.3	0.8	1.2
Sodium	0.5	mg/L	120	34	31	41
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	0.002	0.001	< 0.001	0.002
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.79	0.51	< 0.005	< 0.005
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.009	0.002	< 0.001	< 0.001
Zinc (filtered)	0.005	mg/L	0.056	0.009	< 0.005	0.007

Client Sample ID			SRT_BH059	SRT_CBH015	SRT_CBH017	QC02
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42639	M19-Se42640	M19-Se42641	M19-Se42642
Date Sampled			Sep 27, 2019	Sep 27, 2019	Sep 27, 2019	Sep 27, 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

Client Sample ID			SRT_BH059	SRT_CBH015	SRT_CBH017	QC02
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42639	M19-Se42640	M19-Se42641	M19-Se42642
Date Sampled			Sep 27, 2019	Sep 27, 2019	Sep 27, 2019	Sep 27, 2019
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-C36 (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	%	66	78	61	61
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	%	95	59	51	66
p-Terphenyl-d14 (surr.)	1	%	108	68	72	85
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	-
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	-

Client Sample ID			SRT_BH059	SRT_CBH015	SRT_CBH017	QC02
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42639	M19-Se42640	M19-Se42641	M19-Se42642
Date Sampled			Sep 27, 2019	Sep 27, 2019	Sep 27, 2019	Sep 27, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
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	%	107	79	56	-
Tetrachloro-m-xylene (surr.)	1	%	101	54	55	-
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	-
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	%	123	80	50	-

Client Sample ID			SRT_BH059	SRT_CBH015	SRT_CBH017	QC02
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42639	M19-Se42640	M19-Se42641	M19-Se42642
Date Sampled			Sep 27, 2019	Sep 27, 2019	Sep 27, 2019	Sep 27, 2019
Test/Reference	LOR	Unit				
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	%	107	79	56	-
Tetrachloro-m-xylene (surr.)	1	%	101	54	55	-
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	%	57	54	34	-
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	0.12	< 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	-
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	0.10	< 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	10	10	16	-
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	3.2	2.7	0.38	-
pH (at 25°C)	0.1	pH Units	8.0	6.3	7.1	-

Client Sample ID			SRT_BH059	SRT_CBH015	SRT_CBH017	QC02
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42639	M19-Se42640	M19-Se42641	M19-Se42642
Date Sampled			Sep 27, 2019	Sep 27, 2019	Sep 27, 2019	Sep 27, 2019
Test/Reference	LOR	Unit				
Sulphate (as SO4)	5	mg/L	13	47	30	-
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	200	120	120	-
Total Suspended Solids Dried at 103–105°C	1	mg/L	120	5.1	2.0	-
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	190	28	66	-
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	-
Alkali Metals						
Calcium	0.5	mg/L	60	2.7	12	-
Magnesium	0.5	mg/L	6.6	5.1	9.6	-
Potassium	0.5	mg/L	5.7	3.2	3.1	-
Sodium	0.5	mg/L	11	24	20	-
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	0.005	0.001	0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	< 0.005	6.8	0.45	-
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001	0.010	0.002	0.002
Zinc (filtered)	0.005	mg/L	0.008	0.034	0.006	0.006

Client Sample ID			RB01	TRIP BLANK	[R20]TRIP SPIKE	GASW_BH7
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42643	M19-Se42644	M19-Se42645	M19-Se42646
Date Sampled			Sep 26, 2019	Sep 25, 2019	Sep 25, 2019	Sep 25, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	-	< 0.01	110	< 0.01
TRH C6-C10	0.02	mg/L	-	< 0.02	84	0.11
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	-	< 0.02	-	0.03
TRH >C10-C16	0.05	mg/L	-	-	-	0.84
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	-	-	-	0.84
TRH >C16-C34	0.1	mg/L	-	-	-	0.4
TRH >C34-C40	0.1	mg/L	-	-	-	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	-	-	-	1.24
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	-	< 0.02	81	0.10
TRH C10-C14	0.05	mg/L	-	-	-	0.42
TRH C15-C28	0.1	mg/L	-	-	-	0.7
TRH C29-C36	0.1	mg/L	-	-	-	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	-	-	-	1.12
BTEX						
Benzene	0.001	mg/L	-	< 0.001	120	0.070
Toluene	0.001	mg/L	-	< 0.001	110	0.006
Ethylbenzene	0.001	mg/L	-	< 0.001	96	< 0.001
m&p-Xylenes	0.002	mg/L	-	< 0.002	92	< 0.002

Client Sample ID			RB01	TRIP BLANK	[R20]TRIP SPIKE	GASW_BH7
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42643	M19-Se42644	M19-Se42645	M19-Se42646
Date Sampled			Sep 26, 2019	Sep 25, 2019	Sep 25, 2019	Sep 25, 2019
Test/Reference	LOR	Unit				
BTEX						
o-Xylene	0.001	mg/L	-	< 0.001	100	0.001
Xylenes - Total	0.003	mg/L	-	< 0.003	96	< 0.003
4-Bromofluorobenzene (surr.)	1	%	-	64	84	100
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	%	-	-	-	63
p-Terphenyl-d14 (surr.)	1	%	-	-	-	89
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
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

Client Sample ID			RB01	TRIP BLANK	[R20]TRIP SPIKE	GASW_BH7
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42643	M19-Se42644	M19-Se42645	M19-Se42646
Date Sampled			Sep 26, 2019	Sep 25, 2019	Sep 25, 2019	Sep 25, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Dibutylchlorendate (surr.)	1	%	-	-	-	111
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	62
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	%	-	-	-	107
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
Aroclor-1260	0.001	mg/L	-	-	-	< 0.001
Total PCB*	0.001	mg/L	-	-	-	< 0.001
Dibutylchlorendate (surr.)	1	%	-	-	-	111
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	62

Client Sample ID			RB01	TRIP BLANK	[R20]TRIP SPIKE	GASW_BH7
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42643	M19-Se42644	M19-Se42645	M19-Se42646
Date Sampled			Sep 26, 2019	Sep 25, 2019	Sep 25, 2019	Sep 25, 2019
Test/Reference	LOR	Unit				
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	%	-	-	-	53
TRH - 2013 NEPM Fractions (after silica gel clean-up)						
TRH >C10-C16 (after silica gel clean-up)	0.05	mg/L	-	-	-	0.24
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	-	-	-	0.25
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	-	-	-	0.15
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	-	-	-	0.02
Chloride	1	mg/L	-	-	-	35
Cyanide (total)	0.005	mg/L	-	-	-	< 0.005
Ferrous Iron - Fe2+	0.05	mg/L	-	-	-	12
Nitrate (as N)	0.02	mg/L	-	-	-	0.05
pH (at 25°C)	0.1	pH Units	-	-	-	3.5
Sulphate (as SO4)	5	mg/L	-	-	-	160
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	-	-	-	260
Total Suspended Solids Dried at 103–105°C	1	mg/L	-	-	-	27
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	-	-	-	< 20
Carbonate Alkalinity (as CaCO3)	10	mg/L	-	-	-	< 10
Alkali Metals						
Calcium	0.5	mg/L	-	-	-	4.3
Magnesium	0.5	mg/L	-	-	-	4.2
Potassium	0.5	mg/L	-	-	-	0.5
Sodium	0.5	mg/L	-	-	-	69

Client Sample ID			RB01	TRIP BLANK	[R20]TRIP SPIKE	GASW_BH7
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42643	M19-Se42644	M19-Se42645	M19-Se42646
Date Sampled			Sep 26, 2019	Sep 25, 2019	Sep 25, 2019	Sep 25, 2019
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	-	-	-	< 0.001
Copper	0.001	mg/L	< 0.001	-	-	-
Copper (filtered)	0.001	mg/L	-	-	-	0.007
Lead	0.001	mg/L	< 0.001	-	-	-
Lead (filtered)	0.001	mg/L	-	-	-	0.003
Manganese (filtered)	0.005	mg/L	-	-	-	0.11
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	-	-	-	0.002
Zinc	0.005	mg/L	< 0.005	-	-	-
Zinc (filtered)	0.005	mg/L	-	-	-	0.064

Client Sample ID			GASW_BH10	GASW_BH11	GASW_BH23	[R16]GASW_BH25A
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42647	M19-Se42648	M19-Se42649	M19-Se42650
Date Sampled			Sep 26, 2019	Sep 25, 2019	Sep 25, 2019	Sep 25, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.04
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	5.0	10
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	2.8	4.9
TRH >C10-C16	0.05	mg/L	0.30	0.64	0.40	0.26
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	0.3	0.64	0.4	0.26
TRH >C16-C34	0.1	mg/L	< 0.1	0.2	0.3	0.2
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	0.3	0.84	0.7	0.46
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	5.3	12
TRH C10-C14	0.05	mg/L	0.27	0.36	0.30	0.22
TRH C15-C28	0.1	mg/L	0.2	0.5	0.3	0.3
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	0.47	0.86	0.6	0.52
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	1.9	3.6
Toluene	0.001	mg/L	0.002	0.001	0.23	1.2
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	0.030	0.053
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	0.044	0.14
o-Xylene	0.001	mg/L	< 0.001	< 0.001	0.025	0.077
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	0.068	0.22
4-Bromofluorobenzene (surr.)	1	%	86	82	92	120

Client Sample ID			GASW_BH10	GASW_BH11	GASW_BH23	[R16]GASW_BH25A
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42647	M19-Se42648	M19-Se42649	M19-Se42650
Date Sampled			Sep 26, 2019	Sep 25, 2019	Sep 25, 2019	Sep 25, 2019
Test/Reference	LOR	Unit				
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	0.002	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	0.002	0.001
2-Fluorobiphenyl (surr.)	1	%	78	66	67	65
p-Terphenyl-d14 (surr.)	1	%	89	85	98	56
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	%	113	104	129	64
Tetrachloro-m-xylene (surr.)	1	%	66	65	72	62

Client Sample ID			GASW_BH10	GASW_BH11	GASW_BH23	[R16]GASW_BH25A
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42647	M19-Se42648	M19-Se42649	M19-Se42650
Date Sampled			Sep 26, 2019	Sep 25, 2019	Sep 25, 2019	Sep 25, 2019
Test/Reference	LOR	Unit				
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	%	118	101	112	60
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	%	113	104	129	64
Tetrachloro-m-xylene (surr.)	1	%	66	65	72	62

Client Sample ID			GASW_BH10	GASW_BH11	GASW_BH23	[R16]GASW_BH25A
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42647	M19-Se42648	M19-Se42649	M19-Se42650
Date Sampled			Sep 26, 2019	Sep 25, 2019	Sep 25, 2019	Sep 25, 2019
Test/Reference	LOR	Unit				
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	0.017	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	51	43	58	40
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	0.24	< 0.05
TRH >C16-C34 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	0.2	< 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	0.38	< 0.1
TRH C10-C14 (after silica gel clean-up)	0.05	mg/L	< 0.05	< 0.05	0.18	< 0.05
TRH C15-C28 (after silica gel clean-up)	0.1	mg/L	< 0.1	< 0.1	0.2	< 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	0.03	0.25	0.39
Chloride	1	mg/L	180	37	19	26
Cyanide (total)	0.005	mg/L	< 0.005	< 0.005	< 0.005	0.023
Ferrous Iron - Fe2+	0.05	mg/L	11	1.1	10	0.31
Nitrate (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
pH (at 25°C)	0.1	pH Units	7.4	6.3	7.6	7.5
Sulphate (as SO4)	5	mg/L	< 5	46	380	260
Total Dissolved Solids Dried at 180°C ± 2°C	10	mg/L	920	130	640	460
Total Suspended Solids Dried at 103–105°C	1	mg/L	290	28	480	21
Alkalinity (speciated)						
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	450	41	180	97
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10	< 10
Alkali Metals						
Calcium	0.5	mg/L	71	4.7	160	97
Magnesium	0.5	mg/L	52	6.7	14	6.1
Potassium	0.5	mg/L	15	1.3	13	6.6
Sodium	0.5	mg/L	150	45	39	47

Client Sample ID			GASW_BH10	GASW_BH11	GASW_BH23	[R16]GASW_BH25A
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			M19-Se42647	M19-Se42648	M19-Se42649	M19-Se42650
Date Sampled			Sep 26, 2019	Sep 25, 2019	Sep 25, 2019	Sep 25, 2019
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.001	< 0.001	0.004	0.006
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	0.003	0.002	0.003
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Manganese (filtered)	0.005	mg/L	0.48	0.25	0.49	0.14
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.026	0.002	0.004	< 0.001
Zinc (filtered)	0.005	mg/L	0.015	0.016	0.55	< 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.

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 02, 2019	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Melbourne	Oct 02, 2019	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Oct 02, 2019	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Oct 02, 2019	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Eurofins | mgt Suite B7A (filtered metals)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Oct 02, 2019	
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Oct 02, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Melbourne	Oct 02, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Oct 02, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8 filtered	Melbourne	Oct 02, 2019	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins | mgt Suite B15			
Organochlorine Pesticides	Melbourne	Oct 02, 2019	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270)			
Organophosphorus Pesticides	Melbourne	Oct 02, 2019	7 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS (USEPA 8081)			
Polychlorinated Biphenyls	Melbourne	Oct 02, 2019	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8082)			
TRH - 2013 NEPM Fractions (after silica gel clean-up)	Melbourne	Oct 02, 2019	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
TRH - 1999 NEPM Fractions (after silica gel clean-up)	Melbourne	Oct 02, 2019	7 Days
- Method: TRH C6-C36 (Silica Gel Cleanup) - MGT 100A			
Eurofins | mgt Suite B11			
Ammonia (as N)	Melbourne	Oct 02, 2019	28 Days
- Method: LTM-INO-4200 Ammonia by Discrete Analyser			
Chloride	Melbourne	Oct 02, 2019	28 Days
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Nitrate (as N)	Melbourne	Oct 02, 2019	28 Days
- Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA			
Sulphate (as SO4)	Melbourne	Oct 02, 2019	28 Days
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Oct 02, 2019	14 Days
- Method: LTM-INO-4250 Alkalinity by Electrometric Titration			
Alkali Metals	Melbourne	Oct 02, 2019	180 Days
- Method: LTM-MET-3010 Alkali Metals S Si and P by ICP-AES			
Cyanide (total)	Melbourne	Oct 02, 2019	14 Days
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Ferrous Iron - Fe2+	Melbourne	Oct 02, 2019	7 Days
- Method: LTM-INO-4190 Ferrous Iron in Water by Discrete Analyser			
pH (at 25°C)	Melbourne	Oct 02, 2019	0 Hours
- Method: LTM-GEN-7090 pH in water by ISE			
Total Dissolved Solids Dried at 180°C ± 2°C	Melbourne	Oct 02, 2019	7 Days

Description	Testing Site	Extracted	Holding Time
- Method: LTM-INO-4170 Total Dissolved Solids in Water			
Total Suspended Solids Dried at 103–105°C	Melbourne	Oct 07, 2019	7 Days
- Method: LTM-INO-4070 Analysis of Suspended Solids in Water by Gravimetry			
Metals M8	Melbourne	Oct 02, 2019	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Heavy Metals (filtered)	Melbourne	Oct 02, 2019	180 Days
- 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 #: 679636
Phone: 02 9239 7100
Fax: 02 9239 7199

Received: Sep 27, 2019 3:52 PM
Due: Oct 7, 2019
Priority: 5 Day
Contact Name: Henry Luo

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	pH (at 25°C)	Total Dissolved Solids Dried at 180°C ± 2°C	Total Suspended Solids Dried at 103–105°C	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	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	CSM_BH02	Sep 26, 2019		Water	M19-Se42631	X	X	X	X	X	X		X	X	X		X	
2	CSM_BH04	Sep 26, 2019		Water	M19-Se42632	X	X	X	X	X	X		X	X	X		X	
3	CSM_BH06	Sep 26, 2019		Water	M19-Se42633	X	X	X	X	X	X		X	X	X		X	
4	CSM_BH08	Sep 26, 2019		Water	M19-Se42634	X	X	X	X	X	X		X	X	X		X	
5	CSM_BH09S	Sep 25, 2019		Water	M19-Se42635	X	X	X	X	X	X		X	X	X		X	
6	CSM_BH10S	Sep 25, 2019		Water	M19-Se42636	X	X	X	X	X	X		X	X	X		X	
7	SRT_BH047	Sep 27, 2019		Water	M19-Se42637	X	X	X	X	X	X		X	X	X		X	
8	SRT_BH052	Sep 27, 2019		Water	M19-Se42638	X	X	X	X	X	X		X	X	X		X	
9	SRT_BH059	Sep 27, 2019		Water	M19-Se42639	X	X	X	X	X	X		X	X	X		X	

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Address: Level 15, 133 Castlereagh Street
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NSW 2000

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Order No.:
Report #: 679636
Phone: 02 9239 7100
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Received: Sep 27, 2019 3:52 PM
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Priority: 5 Day
Contact Name: Henry Luo

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	pH (at 25°C)	Total Dissolved Solids Dried at 180°C ± 2°C	Total Suspended Solids Dried at 103–105°C	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	X	X	X
Sydney Laboratory - NATA Site # 18217																		
Brisbane Laboratory - NATA Site # 20794																		
Perth Laboratory - NATA Site # 23736																		
10	SRT_CBH015	Sep 27, 2019		Water	M19-Se42640	X	X	X	X	X	X		X	X	X		X	
11	SRT_CBH017	Sep 27, 2019		Water	M19-Se42641	X	X	X	X	X	X		X	X	X		X	
12	QC02	Sep 27, 2019		Water	M19-Se42642											X		
13	RB01	Sep 26, 2019		Water	M19-Se42643							X						
14	TRIP BLANK	Sep 25, 2019		Water	M19-Se42644													X
15	TRIP SPIKE	Sep 25, 2019		Water	M19-Se42645													X
16	GASW_BH7	Sep 25, 2019		Water	M19-Se42646	X	X	X	X	X	X		X	X	X		X	
17	GASW_BH10	Sep 26, 2019		Water	M19-Se42647	X	X	X	X	X	X		X	X	X		X	
18	GASW_BH11	Sep 25, 2019		Water	M19-Se42648	X	X	X	X	X	X		X	X	X		X	
19	GASW_BH23	Sep 25, 2019		Water	M19-Se42649	X	X	X	X	X	X		X	X	X		X	
20	GASW_BH25A	Sep 25, 2019		Water	M19-Se42650	X	X	X	X	X	X		X	X	X		X	

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Site # 23736

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Address: Level 15, 133 Castlereagh Street
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NSW 2000

Project Name: CENTRAL
Project ID: 21-27234

Order No.:
Report #: 679636
Phone: 02 9239 7100
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Received: Sep 27, 2019 3:52 PM
Due: Oct 7, 2019
Priority: 5 Day
Contact Name: Henry Luo

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail	Cyanide (total)	Ferrous Iron - Fe2+	Manganese (filtered)	pH (at 25°C)	Total Dissolved Solids Dried at 180°C ± 2°C	Total Suspended Solids Dried at 103–105°C	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	X	X	X
Sydney Laboratory - NATA Site # 18217													
Brisbane Laboratory - NATA Site # 20794													
Perth Laboratory - NATA Site # 23736													
Test Counts	16	16	16	16	16	16	1	16	16	16	1	16	2

eurofins | Environment Testing

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

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

Units

mg/kg: milligrams per kilogram | **mg/L:** milligrams per litre | **ug/L:** micrograms per litre

ppm: Parts per million | **ppb:** Parts per billion | **%:** Percentage

org/100mL: Organisms per 100 millilitres | **NTU:** Nephelometric Turbidity Units | **MPN/100mL:** Most Probable Number of organisms per 100 millilitres

Terms

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

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 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	
Total Dissolved Solids Dried at 180°C ± 2°C	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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	%	124			70-130	Pass	
TRH C6-C10	%	113			70-130	Pass	
TRH >C10-C16	%	78			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	114			70-130	Pass	
TRH C10-C14	%	85			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	113			70-130	Pass	
Toluene	%	110			70-130	Pass	
Ethylbenzene	%	102			70-130	Pass	
m&p-Xylenes	%	103			70-130	Pass	
Xylenes - Total	%	96			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	105			70-130	Pass	
Acenaphthylene	%	102			70-130	Pass	
Anthracene	%	88			70-130	Pass	
Benz(a)anthracene	%	92			70-130	Pass	
Benzo(a)pyrene	%	94			70-130	Pass	
Benzo(b&j)fluoranthene	%	112			70-130	Pass	
Benzo(g.h.i)perylene	%	94			70-130	Pass	
Benzo(k)fluoranthene	%	108			70-130	Pass	
Chrysene	%	115			70-130	Pass	
Dibenz(a.h)anthracene	%	93			70-130	Pass	
Fluoranthene	%	124			70-130	Pass	
Fluorene	%	110			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	93			70-130	Pass	
Naphthalene	%	104			70-130	Pass	
Phenanthrene	%	113			70-130	Pass	
Pyrene	%	121			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	72			70-130	Pass	
4.4'-DDD	%	89			70-130	Pass	
4.4'-DDE	%	99			70-130	Pass	
4.4'-DDT	%	86			70-130	Pass	
a-BHC	%	103			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aldrin	%	94			70-130	Pass	
b-BHC	%	97			70-130	Pass	
d-BHC	%	104			70-130	Pass	
Dieldrin	%	92			70-130	Pass	
Endosulfan I	%	100			70-130	Pass	
Endosulfan II	%	95			70-130	Pass	
Endosulfan sulphate	%	92			70-130	Pass	
Endrin	%	90			70-130	Pass	
Endrin aldehyde	%	96			70-130	Pass	
Endrin ketone	%	94			70-130	Pass	
g-BHC (Lindane)	%	115			70-130	Pass	
Heptachlor	%	95			70-130	Pass	
Heptachlor epoxide	%	98			70-130	Pass	
Hexachlorobenzene	%	105			70-130	Pass	
Methoxychlor	%	79			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	90			70-130	Pass	
Dimethoate	%	82			70-130	Pass	
Ethion	%	85			70-130	Pass	
Fenitrothion	%	96			70-130	Pass	
Methyl parathion	%	97			70-130	Pass	
Mevinphos	%	87			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	89			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	104			30-130	Pass	
2.4-Dichlorophenol	%	101			30-130	Pass	
2.4.5-Trichlorophenol	%	116			30-130	Pass	
2.4.6-Trichlorophenol	%	99			30-130	Pass	
2.6-Dichlorophenol	%	117			30-130	Pass	
4-Chloro-3-methylphenol	%	93			30-130	Pass	
Pentachlorophenol	%	88			30-130	Pass	
Tetrachlorophenols - Total	%	116			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	89			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	87			30-130	Pass	
2-Methylphenol (o-Cresol)	%	91			30-130	Pass	
2-Nitrophenol	%	108			30-130	Pass	
2.4-Dimethylphenol	%	76			30-130	Pass	
2.4-Dinitrophenol	%	92			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	96			30-130	Pass	
4-Nitrophenol	%	84			30-130	Pass	
Dinoseb	%	86			30-130	Pass	
Phenol	%	79			30-130	Pass	
LCS - % Recovery							
TRH - 2013 NEPM Fractions (after silica gel clean-up)							
TRH >C10-C16 (after silica gel clean-up)	%	82			70-130	Pass	
LCS - % Recovery							
TRH - 1999 NEPM Fractions (after silica gel clean-up)							
TRH C10-C14 (after silica gel clean-up)	%	90			70-130	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ammonia (as N)	%	105			70-130	Pass	
Chloride	%	111			70-130	Pass	
Cyanide (total)	%	96			70-130	Pass	
Ferrous Iron - Fe2+	%	120			70-130	Pass	
Nitrate (as N)	%	105			70-130	Pass	
Sulphate (as SO4)	%	100			70-130	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	%	78			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Carbonate Alkalinity (as CaCO3)	%	97			70-130	Pass	
LCS - % Recovery							
Alkali Metals							
Calcium	%	98			70-130	Pass	
Magnesium	%	95			70-130	Pass	
Potassium	%	96			70-130	Pass	
Sodium	%	86			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	105			80-120	Pass	
Cadmium	%	101			80-120	Pass	
Chromium	%	101			80-120	Pass	
Copper	%	102			80-120	Pass	
Lead	%	103			80-120	Pass	
Mercury	%	94			75-125	Pass	
Nickel	%	101			80-120	Pass	
Zinc	%	111			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	M19-Se42222	NCP	%	107			70-130	Pass	
TRH C6-C10	M19-Se42222	NCP	%	124			70-130	Pass	
TRH >C10-C16	M19-Oc02542	NCP	%	102			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M19-Se42222	NCP	%	120			70-130	Pass	
TRH C10-C14	M19-Oc02542	NCP	%	107			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M19-Se42222	NCP	%	125			70-130	Pass	
Toluene	M19-Se42222	NCP	%	108			70-130	Pass	
Ethylbenzene	M19-Se42222	NCP	%	127			70-130	Pass	
m&p-Xylenes	M19-Se42222	NCP	%	124			70-130	Pass	
o-Xylene	M19-Se42222	NCP	%	110			70-130	Pass	
Xylenes - Total	M19-Se42222	NCP	%	119			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	B19-Se41198	NCP	%	107			70-130	Pass	
Acenaphthylene	B19-Se41198	NCP	%	111			70-130	Pass	
Anthracene	B19-Se41198	NCP	%	121			70-130	Pass	
Benz(a)anthracene	B19-Se41198	NCP	%	87			70-130	Pass	
Benzo(a)pyrene	B19-Se41198	NCP	%	103			70-130	Pass	
Benzo(b&j)fluoranthene	B19-Se41198	NCP	%	96			70-130	Pass	
Benzo(g.h.i)perylene	B19-Se41198	NCP	%	107			70-130	Pass	
Benzo(k)fluoranthene	B19-Se41198	NCP	%	120			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chrysene	B19-Se41198	NCP	%	117			70-130	Pass	
Dibenz(a.h)anthracene	B19-Se41198	NCP	%	94			70-130	Pass	
Fluoranthene	B19-Se41198	NCP	%	120			70-130	Pass	
Fluorene	B19-Se41198	NCP	%	119			70-130	Pass	
Indeno(1.2.3-cd)pyrene	B19-Se41198	NCP	%	78			70-130	Pass	
Naphthalene	B19-Se41198	NCP	%	91			70-130	Pass	
Phenanthrene	B19-Se41198	NCP	%	111			70-130	Pass	
Pyrene	B19-Se41198	NCP	%	121			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	M19-Se39540	NCP	%	81			70-130	Pass	
4.4'-DDD	M19-Se39540	NCP	%	73			70-130	Pass	
4.4'-DDE	M19-Se39540	NCP	%	114			70-130	Pass	
4.4'-DDT	M19-Se39540	NCP	%	74			70-130	Pass	
a-BHC	M19-Se39540	NCP	%	91			70-130	Pass	
Aldrin	M19-Se39540	NCP	%	97			70-130	Pass	
b-BHC	M19-Se39540	NCP	%	86			70-130	Pass	
d-BHC	M19-Se39540	NCP	%	77			70-130	Pass	
Dieldrin	M19-Se39540	NCP	%	104			70-130	Pass	
Endosulfan I	M19-Se39540	NCP	%	77			70-130	Pass	
Endosulfan II	M19-Se39540	NCP	%	104			70-130	Pass	
Endosulfan sulphate	M19-Se39540	NCP	%	85			70-130	Pass	
Endrin	M19-Se39540	NCP	%	86			70-130	Pass	
Endrin aldehyde	M19-Se39540	NCP	%	101			70-130	Pass	
Endrin ketone	M19-Se39540	NCP	%	86			70-130	Pass	
g-BHC (Lindane)	M19-Se39540	NCP	%	117			70-130	Pass	
Heptachlor	M19-Se39540	NCP	%	80			70-130	Pass	
Heptachlor epoxide	M19-Se39540	NCP	%	93			70-130	Pass	
Hexachlorobenzene	M19-Se39540	NCP	%	100			70-130	Pass	
Methoxychlor	M19-Se39540	NCP	%	96			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	B19-Se41198	NCP	%	92			30-130	Pass	
2.4-Dichlorophenol	B19-Se41198	NCP	%	84			30-130	Pass	
2.4.5-Trichlorophenol	B19-Se41198	NCP	%	103			30-130	Pass	
2.4.6-Trichlorophenol	B19-Se41198	NCP	%	90			30-130	Pass	
2.6-Dichlorophenol	B19-Se41198	NCP	%	115			30-130	Pass	
4-Chloro-3-methylphenol	B19-Se41198	NCP	%	58			30-130	Pass	
Pentachlorophenol	B19-Se41198	NCP	%	80			30-130	Pass	
Tetrachlorophenols - Total	B19-Se41198	NCP	%	118			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	B19-Se41198	NCP	%	66			30-130	Pass	
2-Methyl-4.6-dinitrophenol	B19-Se41198	NCP	%	89			30-130	Pass	
2-Methylphenol (o-Cresol)	B19-Se41198	NCP	%	64			30-130	Pass	
2-Nitrophenol	B19-Se41198	NCP	%	103			30-130	Pass	
2.4-Dimethylphenol	B19-Se41198	NCP	%	79			30-130	Pass	
2.4-Dinitrophenol	M19-Se33979	NCP	%	41			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	B19-Se41198	NCP	%	61			30-130	Pass	
4-Nitrophenol	M19-Se36016	NCP	%	49			30-130	Pass	
Dinoseb	B19-Se41198	NCP	%	104			30-130	Pass	
Phenol	B19-Se41198	NCP	%	39			30-130	Pass	
Spike - % Recovery									
				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Nitrate (as N)	M19-Se44020	NCP	%	108			70-130	Pass	
Sulphate (as SO4)	M19-Se42267	NCP	%	105			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M19-Se42631	CP	%	145			70-130	Fail	Q08
Magnesium	M19-Se42631	CP	%	148			70-130	Fail	Q08
Potassium	M19-Se42631	CP	%	142			70-130	Fail	Q08
Sodium	M19-Se42631	CP	%	152			70-130	Fail	Q08
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	M19-Se42632	CP	%	78			70-130	Pass	
Aroclor-1260	M19-Se42632	CP	%	79			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M19-Se42635	CP	%	102			70-130	Pass	
Cadmium (filtered)	M19-Se42635	CP	%	97			70-130	Pass	
Chromium (filtered)	M19-Se42635	CP	%	99			70-130	Pass	
Copper (filtered)	M19-Se42635	CP	%	99			70-130	Pass	
Lead (filtered)	M19-Se42635	CP	%	97			70-130	Pass	
Manganese (filtered)	M19-Se42635	CP	%	12			70-130	Fail	Q08
Mercury (filtered)	M19-Se42635	CP	%	81			70-130	Pass	
Nickel (filtered)	M19-Se42635	CP	%	98			70-130	Pass	
Zinc (filtered)	M19-Se42635	CP	%	103			70-130	Pass	
Spike - % Recovery									
Alkalinity (speciated)				Result 1					
Bicarbonate Alkalinity (as CaCO3)	M19-Se42637	CP	%	93			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M19-Se42638	CP	%	102			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chloride	M19-Se42641	CP	%	103			70-130	Pass	
Ferrous Iron - Fe2+	M19-Se42641	CP	%	102			70-130	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M19-Se42641	CP	%	131			70-130	Fail	Q08
Magnesium	M19-Se42641	CP	%	137			70-130	Fail	Q08
Potassium	M19-Se42641	CP	%	134			70-130	Fail	Q08
Sodium	M19-Se42641	CP	%	141			70-130	Fail	Q08
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	W19-Se43596	NCP	%	92			75-125	Pass	
Cadmium	W19-Se43596	NCP	%	90			75-125	Pass	
Chromium	W19-Se43596	NCP	%	89			75-125	Pass	
Copper	W19-Se43596	NCP	%	91			75-125	Pass	
Lead	W19-Se43596	NCP	%	90			75-125	Pass	
Mercury	W19-Se43596	NCP	%	85			70-130	Pass	
Nickel	W19-Se43596	NCP	%	90			75-125	Pass	
Zinc	W19-Se43596	NCP	%	93			75-125	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M19-Se42647	CP	%	96			70-130	Pass	
Cadmium (filtered)	M19-Se42647	CP	%	93			70-130	Pass	
Chromium (filtered)	M19-Se42647	CP	%	94			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Copper (filtered)	M19-Se42647	CP	%	93			70-130	Pass	
Lead (filtered)	M19-Se42647	CP	%	92			70-130	Pass	
Manganese (filtered)	M19-Se42647	CP	%	11			70-130	Fail	Q08
Mercury (filtered)	M19-Se42647	CP	%	21			70-130	Fail	Q08
Nickel (filtered)	M19-Se42647	CP	%	88			70-130	Pass	
Zinc (filtered)	M19-Se42647	CP	%	98			70-130	Pass	
Spike - % Recovery									
				Result 1					
Cyanide (total)	M19-Se42650	CP	%	105			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-Se42589	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	M19-Se42589	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	M19-Oc03221	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M19-Oc03221	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M19-Oc03221	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	M19-Se42589	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	M19-Oc03221	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M19-Oc03221	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M19-Oc03221	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M19-Se42589	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	M19-Se42589	NCP	mg/L	0.001	0.001	20	30%	Pass	
Ethylbenzene	M19-Se42589	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M19-Se42589	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	M19-Se42589	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	M19-Se42589	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M19-Se42631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	M19-Se42631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	M19-Se42631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	M19-Se42631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	M19-Se42631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M19-Se42631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	M19-Se42631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	M19-Se42631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	M19-Se42631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	M19-Se42631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	M19-Se42631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	M19-Se42631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M19-Se42631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	M19-Se42631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	M19-Se42631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	M19-Se42631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M19-Se42631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4.4'-DDD	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDE	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDT	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
a-BHC	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Aldrin	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
b-BHC	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
d-BHC	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Dieldrin	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan I	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan II	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan sulphate	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin aldehyde	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin ketone	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
g-BHC (Lindane)	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor epoxide	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Hexachlorobenzene	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Methoxychlor	M19-Se42631	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Toxaphene	M19-Se40235	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Bolstar	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorfenvinphos	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Chlorpyrifos	M19-Se42631	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Chlorpyrifos-methyl	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Coumaphos	M19-Se42631	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-S	M19-Se42631	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Demeton-O	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Diazinon	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dichlorvos	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Dimethoate	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Disulfoton	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
EPN	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethion	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethoprop	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ethyl parathion	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenitrothion	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fensulfothion	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Fenthion	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Malathion	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Merphos	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Methyl parathion	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Mevinphos	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Monocrotophos	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Naled	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Omethoate	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Phorate	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Pirimiphos-methyl	M19-Se42631	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Pyrazophos	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Ronnel	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Terbufos	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Tetrachlorvinphos	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Tokuthion	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Trichloronate	M19-Se42631	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M19-Se42631	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dichlorophenol	M19-Se42631	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4.5-Trichlorophenol	M19-Se42631	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	M19-Se42631	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	M19-Se42631	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
4-Chloro-3-methylphenol	M19-Se42631	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Pentachlorophenol	M19-Se42631	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Tetrachlorophenols - Total	M19-Se42631	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M19-Se42631	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M19-Se42631	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M19-Se42631	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Nitrophenol	M19-Se42631	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dimethylphenol	M19-Se42631	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	M19-Se42631	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Se42631	CP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
4-Nitrophenol	M19-Se42631	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Dinoseb	M19-Se42631	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Phenol	M19-Se42631	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ferrous Iron - Fe2+	M19-Se42631	CP	mg/L	1.2	1.2	1.0	30%	Pass	
Nitrate (as N)	M19-Se44020	NCP	mg/L	0.20	0.20	1.0	30%	Pass	
pH (at 25°C)	M19-Se42631	CP	pH Units	7.8	7.7	pass	30%	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	M19-Se42631	CP	mg/L	440	420	7.0	30%	Pass	
Total Suspended Solids Dried at 103–105°C	M19-Oc01691	NCP	mg/L	120	120	7.0	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M19-Se42631	CP	mg/L	310	310	<1	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M19-Se42631	CP	mg/L	< 10	< 10	<1	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M19-Se42631	CP	mg/L	44	44	<1	30%	Pass	
Magnesium	M19-Se42631	CP	mg/L	37	37	1.0	30%	Pass	
Potassium	M19-Se42631	CP	mg/L	4.8	4.8	<1	30%	Pass	
Sodium	M19-Se42631	CP	mg/L	110	110	4.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	M19-Se42633	CP	mg/L	140	140	2.0	30%	Pass	
Sulphate (as SO4)	M19-Se42633	CP	mg/L	15	24	47	30%	Fail	Q15
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M19-Se42635	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	M19-Se42635	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M19-Se42635	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	M19-Se42635	CP	mg/L	0.002	0.002	1.0	30%	Pass	
Lead (filtered)	M19-Se42635	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Manganese (filtered)	M19-Se42635	CP	mg/L	0.79	0.78	2.0	30%	Pass	
Mercury (filtered)	M19-Se42635	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M19-Se42635	CP	mg/L	0.009	0.009	1.0	30%	Pass	
Zinc (filtered)	M19-Se42635	CP	mg/L	0.056	0.055	3.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M19-Se42638	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
pH (at 25°C)	M19-Se42641	CP	pH Units	7.1	7.0	pass	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	M19-Se42641	CP	mg/L	66	67	1.0	30%	Pass	
Carbonate Alkalinity (as CaCO3)	M19-Se42641	CP	mg/L	< 10	< 10	<1	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M19-Se42641	CP	mg/L	12	12	1.0	30%	Pass	
Magnesium	M19-Se42641	CP	mg/L	9.6	9.6	<1	30%	Pass	
Potassium	M19-Se42641	CP	mg/L	3.1	3.1	1.0	30%	Pass	
Sodium	M19-Se42641	CP	mg/L	20	20	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	W19-Se43596	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	W19-Se43596	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	W19-Se43596	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	W19-Se43596	NCP	mg/L	0.004	0.004	11	30%	Pass	
Lead	W19-Se43596	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	W19-Se43596	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	W19-Se43596	NCP	mg/L	0.005	0.004	22	30%	Pass	
Zinc	W19-Se43596	NCP	mg/L	0.031	0.028	11	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	M19-Se42647	CP	mg/L	180	190	5.0	30%	Pass	
Sulphate (as SO4)	M19-Se42647	CP	mg/L	< 5	< 5	<1	30%	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	M19-Se42647	CP	mg/L	920	800	14	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M19-Se42647	CP	mg/L	0.001	0.001	8.0	30%	Pass	
Cadmium (filtered)	M19-Se42647	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M19-Se42647	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	M19-Se42647	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	M19-Se42647	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Manganese (filtered)	M19-Se42647	CP	mg/L	0.48	0.48	<1	30%	Pass	
Mercury (filtered)	M19-Se42647	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	M19-Se42647	CP	mg/L	0.026	0.026	<1	30%	Pass	
Zinc (filtered)	M19-Se42647	CP	mg/L	0.015	0.015	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Cyanide (total)	M19-Se42650	CP	mg/L	0.023	0.025	7.0	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.
R16	The LORs have been raised due to the high concentration of one or more analytes
R20	This sample is a Trip Spike and therefore all results are reported as a percentage

Authorised By

Alena Bounkeua	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.

Eurofins 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 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.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1914568**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MR HENRY LUO	Contact	: Shirley LeCornu
Address	: LEVEL 15, 133 CASTLEREAGH STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 02 9239 7100	Telephone	: +6138549 9630
Project	: 21-27234	Date Samples Received	: 04-Sep-2019 08:30
Order number	:	Date Analysis Commenced	: 06-Sep-2019
C-O-C number	: ----	Issue Date	: 11-Sep-2019 15:21
Sampler	: TN		
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*
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

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

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

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

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

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	QC01	----	----	----	----
			Client sampling date / time	28-Aug-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1914568-001	--------	--------	--------	--------
				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	**0.009**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	**0.041**	----	----	----	----
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	QC01	----	----	----	----
				Client sampling date / time	28-Aug-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1914568-001	--------	--------	--------	--------
					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	%		**14.0**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**65.0**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**75.9**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**83.1**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**83.1**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**94.5**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**108**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**95.1**	----	----	----	----
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	46
2-Chlorophenol-D4	93951-73-6	23	104
2.4.6-Tribromophenol	118-79-6	28	130
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	36	114
Anthracene-d10	1719-06-8	51	119
4-Terphenyl-d14	1718-51-0	49	127
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1914568**	Page	: 1 of 7
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MR HENRY LUO	Contact	: Shirley LeCornu
Address	: LEVEL 15, 133 CASTLEREAGH STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 02 9239 7100	Telephone	: +6138549 9630
Project	: 21-27234	Date Samples Received	: 04-Sep-2019
Order number	:	Date Analysis Commenced	: 06-Sep-2019
C-O-C number	: ----	Issue Date	: 11-Sep-2019
Sampler	: TN		
Site	:		
Quote number	: EN/005/18		
No. of samples received	: 1		
No. of samples analysed	: 1		

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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*
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

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: 2571729)									
EM1914519-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0011	0.0008	26.1	0% - 50%
		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	0.003	0.003	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	0.159	0.163	2.24	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.049	0.051	4.95	0% - 50%
EM1913610-021	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0005	<0.0005	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.306	0.300	2.11	0% - 20%
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.031	0.031	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.005	<0.005	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.083	0.090	8.82	0% - 50%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.067	0.063	6.05	0% - 50%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.025	<0.025	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 2571730)									
EM1914568-001	QC01	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EM1913610-021	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: 2569411)									
EM1914568-001	QC01	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: 2569411) - continued									
EM1914568-001	QC01	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: 2569412)									
EM1914568-001	QC01	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: 2571030)									
EM1914565-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EM1914610-006	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2569412)									
EM1914568-001	QC01	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: 2571030)									
EM1914565-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EM1914610-006	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2571030)									
EM1914565-001	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
EM1914610-006	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

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: 2571030) - continued									
EM1914610-006	Anonymous	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: 2571729)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.0	89	108
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	105	84	108
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	83	105
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	100	83	106
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	85	107
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	104	84	108
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.4	86	111
EG035F: Dissolved Mercury by FIMS (QCLot: 2571730)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	83.9	71	112
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2569411)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	75.0	41	116
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	81.7	47	121
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	80.8	47	118
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	82.9	49	121
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	88.7	53	124
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	90.6	52	125
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	84.9	52	127
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	86.7	51	130
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	82.3	50	130
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	83.0	50	131
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	80.1	52	132
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	79.3	54	131
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	79.0	52	133
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	78.1	50	127
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	75.5	50	127
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	76.0	51	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2569412)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	3330 µg/L	104	45	125
EP071: C15 - C28 Fraction	----	100	µg/L	<100	16500 µg/L	86.6	51	135
EP071: C29 - C36 Fraction	----	50	µg/L	<50	7800 µg/L	89.2	49	134
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2571030)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	360 µg/L	115	66	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2569412)								

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: 2569412) - continued								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	5690 µg/L	90.4	47	129
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	20700 µg/L	88.9	50	133
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1510 µg/L	92.0	45	136
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2571030)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	450 µg/L	113	64	126
EP080: BTEXN (QCLot: 2571030)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	104	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	113	74	126
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	112	72	126
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	116	72	132
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	116	77	132
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	110	71	127

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: 2571729)							
EM1913610-021	Anonymous	EG020A-F: Arsenic	7440-38-2	0.5 mg/L	98.8	85	131
		EG020A-F: Cadmium	7440-43-9	0.125 mg/L	98.9	81	133
		EG020A-F: Chromium	7440-47-3	0.5 mg/L	127	71	135
		EG020A-F: Copper	7440-50-8	0.5 mg/L	109	76	130
		EG020A-F: Lead	7439-92-1	0.5 mg/L	111	75	133
		EG020A-F: Nickel	7440-02-0	0.5 mg/L	111	73	131
		EG020A-F: Zinc	7440-66-6	0.5 mg/L	108	75	131
EG035F: Dissolved Mercury by FIMS (QCLot: 2571730)							
EM1913610-022	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	89.4	70	120
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2569411)							
EM1914672-022	Anonymous	EP075(SIM): Acenaphthene	83-32-9	5 µg/L	91.0	42	122
		EP075(SIM): Pyrene	129-00-0	5 µg/L	100	40	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2571030)							
EM1914567-001	Anonymous	EP080: C6 - C9 Fraction	----	280 µg/L	84.0	43	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2571030)							

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 Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2571030) - continued							
EM1914567-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	330 µg/L	86.3	44	122
EP080: BTEXN (QCLot: 2571030)							
EM1914567-001	Anonymous	EP080: Benzene	71-43-2	20 µg/L	99.8	68	130
		EP080: Toluene	108-88-3	20 µg/L	103	72	132

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1914568**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MR HENRY LUO	Telephone	: +6138549 9630
Project	: 21-27234	Date Samples Received	: 04-Sep-2019
Site	:	Issue Date	: 11-Sep-2019
Sampler	: TN	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

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QC01	06-Sep-2019	04-Sep-2019	**2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QC01	06-Sep-2019	04-Sep-2019	**2**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Amber Glass Bottle - Unpreserved						
QC01	06-Sep-2019	04-Sep-2019	**2**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Matrix Spikes (MS)					
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			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)							
QC01	**28-Aug-2019**	**----**	----	----	**09-Sep-2019**	24-Feb-2020	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
QC01	**28-Aug-2019**	**----**	----	----	**10-Sep-2019**	25-Sep-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC01	**28-Aug-2019**	**06-Sep-2019**	04-Sep-2019	×	**09-Sep-2019**	16-Oct-2019	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC01	**28-Aug-2019**	**06-Sep-2019**	04-Sep-2019	×	**09-Sep-2019**	16-Oct-2019	✓
Clear glass VOC vial - HCl (EP080)							
QC01	**28-Aug-2019**	**10-Sep-2019**	11-Sep-2019	✓	**10-Sep-2019**	11-Sep-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC01	**28-Aug-2019**	**06-Sep-2019**	04-Sep-2019	×	**09-Sep-2019**	16-Oct-2019	✓
Clear glass VOC vial - HCl (EP080)							
QC01	**28-Aug-2019**	**10-Sep-2019**	11-Sep-2019	✓	**10-Sep-2019**	11-Sep-2019	✓
EP080: BTEXN							
Clear glass VOC vial - HCl (EP080)							
QC01	**28-Aug-2019**	**10-Sep-2019**	11-Sep-2019	✓	**10-Sep-2019**	11-Sep-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	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**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	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	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	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	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	5	**20.00**	**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	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.

eurofins | mgt

Sydney ☑
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Phone: +612 9900 8400
Email: enviro.syd@mgtlabmark.com.au

Brisbane ☐
Unit 1-21 Smallwood Place, Murrarie
Phone: +617 3902 4600
Email: enviro.bris@mgtlabmark.com.au

Melbourne ☐
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

Page 1 of 2

CLIENT DETAILS

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

Contact Name : Terry Nham / ~~Thomas Frederick~~
Project Manager : Henry Luo
Email for results : terry.nham@ghd.com henry.luo@ghd.com
~~thomas.frederick@ghd.com~~

Purchase Order :
PROJECT Number : 21-27234
PROJECT Name : Central

COC Number :
Eurofins | mgt quote ID : GHD Rates 2019
Data output format: ESDAT

Special Directions & Comments :

Eurofins | mgt DI water batch number:

Analytes

	Sample ID	Date	Matrix	TRH, BTEX, PAH, 8 Metals (Dissolved),	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 (Total)	TRH, BTEX, PAH, 8 Metals (B7) (Dissolved)	Ferrous Iron	Manganese	pH	TDS	TSS
1	CSM_BH02	29/8/19	Water	X	X	X	X	X	X	X				X	X	X	X	X
2	CSM_BH04	29/8/19	Water	X	X	X	X	X	X	X				X	X	X	X	X
3	~~CSM_BH05~~		~~Water~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~				~~X~~	~~X~~	~~X~~	~~X~~	~~X~~
4	CSM_BH06	28/8/19	Water	X	X	X	X	X	X	X				X	X	X	X	X
5	CSM_BH08	29/8/19	Water	X	X	X	X	X	X	X				X	X	X	X	X
6	CSM_BH09S	28/8/19	Water	X	X	X	X	X	X	X				X	X	X	X	X
7	CSM_BH10S	29/8/19	Water	X	X	X	X	X	X	X				X	X	X	X	X
8	SRT_BH047	30/8/19	Water	X	X	X	X	X	X	X				X	X	X	X	X
9	SRT_BH052	30/8/19	Water	X	X	X	X	X	X	X				X	X	X	X	X
10	SRT_BH059	30/8/19	Water	X	X	X	X	X	X	X				X	X	X	X	X
11	SRT_BH063	28/8/19	Water	X	X	X	X	X	X	X				X	X	X	X	X
12	SRT_CBH015	30/8/19	Water	X	X	X	X	X	X	X				X	X	X	X	X
13	SRT_CBH017	30/8/19	Water	X	X	X	X	X	X	X				X	X	X	X	X
~~14~~	QC01	28/8/19	Water	PLEASE SEND TO ALS WITH ATTACHED COC														
15	QC02	30/8/19	Water									X						
16	RB01	29/8/19	Water								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	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		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:

Environmental Division
Melbourne
Work Order Reference
EM1914568

Telephone : +61-3-8549 9600

Relinquished By: Terry Nham - GHD
Date & Time : 30/8/2019
Signature:

Laboratory Staff
Received By:
Date & Time: 30/08 3:20PM
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:
Date/Time:
Chilled: Yes / No
Temp: 2.0
Correction:

SEP

#4

Relinquished by Darwin EF 7:30 AM 4/9/19
COSTA 4/9 8:30

CoC rec. by ALS 5/9 @ 11:55 UB

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 45 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 7555 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: townsville.environmental@alsglobal.com

WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: GHD Pty Ltd	**TURNAROUND REQUIREMENTS** ☐ Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (CIRCLE)**	
OFFICE: Sydney	(Standard TAT may be longer for some tests e.g., Ultra Trace Organics) ☐ Non Standard or urgent TAT **(List due date):**	**Custody Seal Intact?**	Yes / No / N/A
PROJECT: 21-27234 Central	**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**	°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:**	**RELINQUISHED BY:**	**RECEIVED BY:**
COC emailed to ALS? (YES / NO)	**EDD FORMAT (or default):**	Terry Nham (GHD)			
Email Reports to: henry.luo@ghd.com terry.nham@ghd.com		DATE/TIME:	DATE/TIME:	DATE/TIME:	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed):		30/8/19			

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 / 3 Metals (Dissolved) (W-26)															
1	QC01	28/08/2019	Water		9	X															
				TOTAL																	

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	: **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**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
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 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: townsville.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 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: 4.1 °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)	Sep-ALS Crows Nest		ML
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:

| 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). | | |

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1912362**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Andrew Epps
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 7 3552 8639
Project	: 21-27234	Date Samples Received	: 23-Apr-2019 13:03
Order number	:	Date Analysis Commenced	: 24-Apr-2019
C-O-C number	: ----	Issue Date	: 30-Apr-2019 13:55
Sampler	: JAMES TOMLINSON, 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*
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) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC01	----	----	----	----
				Client sampling date / time	17-Feb-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1912362-001	--------	--------	--------	--------
					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		**0.008**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.042**	----	----	----	----
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	QC01	----	----	----	----
				Client sampling date / time	17-Feb-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1912362-001	--------	--------	--------	--------
					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	%		**23.8**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**59.4**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**56.2**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**64.0**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**95.7**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**94.8**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**102**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**102**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**111**	----	----	----	----

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	: **ES1912362**	Page	: 1 of 6
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Andrew Epps
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 7 3552 8639
Project	: 21-27234	Date Samples Received	: 23-Apr-2019
Order number	:	Date Analysis Commenced	: 24-Apr-2019
C-O-C number	: ----	Issue Date	: 30-Apr-2019
Sampler	: JAMES TOMLINSON, 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 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: 2314825)									
EW1901742-006	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
ES1912179-001	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	0.358	0.361	0.830	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.187	0.187	0.00	0% - 20%
EG035F: Dissolved Mercury by FIMS (QC Lot: 2314824)									
EP1903825-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES1912362-001	QC01	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2315706)									
ES1912373-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES1912426-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2315706)									
ES1912373-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES1912426-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2315706)									

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: 2315706) - continued									
ES1912373-004	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
ES1912426-007	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: 2314825)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.8	85	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.1	84	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	92.1	85	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.2	81	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	92.6	83	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.8	82	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.0	81	117
EG035F: Dissolved Mercury by FIMS (QCLot: 2314824)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.5	83	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2312704)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	76.1	50	94
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	81.6	64	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	72.3	62	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	79.8	64	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	69.9	63	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	74.7	64	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	85.7	64	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	85.4	63	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	71.4	64	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	71.6	63	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	69.7	62	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	85.2	63	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	83.9	63	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	78.1	60	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	77.9	61	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	72.5	59	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2312705)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	74.2	70	113
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	87.1	81	111
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	82.4	67	117
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2315706)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	89.5	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2312705)								

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: 2312705) - continued								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	94.4	76	112
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	78.7	65	118
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	83.6	77	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2315706)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	93.0	75	127
EP080: BTEXN (QCLot: 2315706)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	81.7	70	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	87.5	69	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	89.2	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	88.3	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	90.2	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	88.3	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: 2314825)							
ES1912211-001	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	97.4	70	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	94.6	70	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	91.5	70	130
		EG020A-F: Copper	7440-50-8	1 mg/L	99.9	70	130
		EG020A-F: Lead	7439-92-1	1 mg/L	88.8	70	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	98.0	70	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	101	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 2314824)							
EP1903825-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	90.4	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2315706)							
ES1912373-004	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	101	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2315706)							
ES1912373-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	99.0	70	130
EP080: BTEXN (QCLot: 2315706)							
ES1912373-004	Anonymous	EP080: Benzene	71-43-2	25 µg/L	88.8	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: 2315706) - continued							
ES1912373-004	Anonymous	EP080: Toluene	108-88-3	25 µg/L	94.6	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	99.2	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	97.6	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	100	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	98.3	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1912362**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Telephone	: +61 7 3552 8639
Project	: 21-27234	Date Samples Received	: 23-Apr-2019
Site	:	Issue Date	: 30-Apr-2019
Sampler	: JAMES TOMLINSON, 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

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EG035F: Dissolved Mercury by FIMS						
Clear Plastic Bottle - Nitric Acid; Filtered						
QC01	----	----	----	29-Apr-2019	17-Mar-2019	**43**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QC01	24-Apr-2019	24-Feb-2019	**59**	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QC01	24-Apr-2019	24-Feb-2019	**59**	----	----	----
Amber VOC Vial - Sulfuric Acid						
QC01	29-Apr-2019	03-Mar-2019	**57**	29-Apr-2019	03-Mar-2019	**57**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Amber Glass Bottle - Unpreserved						
QC01	24-Apr-2019	24-Feb-2019	**59**	----	----	----
Amber VOC Vial - Sulfuric Acid						
QC01	29-Apr-2019	03-Mar-2019	**57**	29-Apr-2019	03-Mar-2019	**57**
EP080: BTEXN						
Amber VOC Vial - Sulfuric Acid						
QC01	29-Apr-2019	03-Mar-2019	**57**	29-Apr-2019	03-Mar-2019	**57**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **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)							
QC01	**17-Feb-2019**	**----**	----	----	**26-Apr-2019**	16-Aug-2019	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
QC01	**17-Feb-2019**	**----**	----	----	**29-Apr-2019**	17-Mar-2019	×
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC01	**17-Feb-2019**	**24-Apr-2019**	24-Feb-2019	×	**27-Apr-2019**	03-Jun-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC01	**17-Feb-2019**	**24-Apr-2019**	24-Feb-2019	×	**28-Apr-2019**	03-Jun-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC01	**17-Feb-2019**	**29-Apr-2019**	03-Mar-2019	×	**29-Apr-2019**	03-Mar-2019	×
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC01	**17-Feb-2019**	**24-Apr-2019**	24-Feb-2019	×	**28-Apr-2019**	03-Jun-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC01	**17-Feb-2019**	**29-Apr-2019**	03-Mar-2019	×	**29-Apr-2019**	03-Mar-2019	×
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC01	**17-Feb-2019**	**29-Apr-2019**	03-Mar-2019	×	**29-Apr-2019**	03-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	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	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	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	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	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	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	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	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 Laboratory: please tick →

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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	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: 11.7 °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 / James Tomlinson SAMPLER MOBILE: 0403 251 883	RELINQUISHED BY:	RECEIVED BY: Grace T
COC emailed to ALS? (YES / NO) EDD FORMAT (or default):	Terry Nham (GHD)	
Email Reports to: henry.luo@ghd.com james.tomlinson@ghd.com terry.nham@ghd.com	DATE/TIME: 18/4/2019	DATE/TIME: 18/4 11:53am
Email Invoice to (will default to PM if no other addresses are listed):	RELINQUISHED BY:	RECEIVED BY: Sp - ALS Gows Nest
	DATE/TIME:	DATE/TIME: 23/4/19 1303

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	QC01	17/2/19	Water		9	X														
				TOTAL																

Environmental Division Sydney
Work Order Reference
ES1912362

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	: **ES1914810**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Andrew Epps
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 7 3552 8639
Project	: 2127234	Date Samples Received	: 16-May-2019 11:20
Order number	:	Date Analysis Commenced	: 17-May-2019
C-O-C number	: ----	Issue Date	: 22-May-2019 18:50
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*
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) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC01	----	----	----	----
				Client sampling date / time	13-May-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1914810-001	--------	--------	--------	--------
					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		**0.005**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.018**	----	----	----	----
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	QC01	----	----	----	----
				Client sampling date / time	13-May-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1914810-001	--------	--------	--------	--------
					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	%		**18.8**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**52.6**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**78.9**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**70.6**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**90.9**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**81.6**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**84.6**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**110**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**107**	----	----	----	----

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	: **ES1914810**	Page	: 1 of 6
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Andrew Epps
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 7 3552 8639
Project	: 2127234	Date Samples Received	: 16-May-2019
Order number	:	Date Analysis Commenced	: 17-May-2019
C-O-C number	: ----	Issue Date	: 22-May-2019
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: 2355286)									
ES1914862-001	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
ES1914883-001	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	0.124	0.125	0.00	0% - 20%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.070	0.070	0.00	0% - 50%
EG035F: Dissolved Mercury by FIMS (QC Lot: 2355285)									
ES1914810-001	QC01	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2354358)									
ES1914772-041	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES1914837-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2354358)									
ES1914772-041	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES1914837-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2354358)									
ES1914772-041	Anonymous	EP080: Benzene	71-43-2	1	µg/L	2	1	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: 2354358) - continued									
ES1914772-041	Anonymous	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
ES1914837-001	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: 2355286)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	91.4	85	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	93.6	84	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.5	85	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	92.8	81	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	92.5	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	93.0	81	117
EG035F: Dissolved Mercury by FIMS (QCLot: 2355285)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.0	83	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2352614)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	69.7	50	94
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	88.8	64	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	88.0	62	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	79.4	64	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	98.2	63	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	85.4	64	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	97.6	64	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	97.3	63	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	93.3	64	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	95.5	63	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	76.8	62	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	84.8	63	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	98.8	63	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	86.3	60	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	85.3	61	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	77.5	59	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2352612)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	70.3	70	113
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	83.4	81	111
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	96.9	67	117
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2354358)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	85.9	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2352612)								

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: 2352612) - continued								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	84.3	76	112
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	89.4	65	118
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	99.0	77	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2354358)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	89.6	75	127
EP080: BTEXN (QCLot: 2354358)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	99.6	70	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	101	69	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	100	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	99.3	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	106	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: 2355286)							
ES1914862-002	Anonymous	EG020A-F: Arsenic	7440-38-2	10 mg/L	100	70	130
		EG020A-F: Cadmium	7440-43-9	2.5 mg/L	94.3	70	130
		EG020A-F: Chromium	7440-47-3	10 mg/L	92.6	70	130
		EG020A-F: Copper	7440-50-8	10 mg/L	95.1	70	130
		EG020A-F: Lead	7439-92-1	10 mg/L	113	70	130
		EG020A-F: Nickel	7440-02-0	10 mg/L	97.6	70	130
		EG020A-F: Zinc	7440-66-6	10 mg/L	96.9	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 2355285)							
ES1914809-009	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	88.0	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2354358)							
ES1914772-041	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	96.0	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2354358)							
ES1914772-041	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	88.8	70	130
EP080: BTEXN (QCLot: 2354358)							
ES1914772-041	Anonymous	EP080: Benzene	71-43-2	25 µg/L	107	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: 2354358) - continued							
ES1914772-041	Anonymous	EP080: Toluene	108-88-3	25 µg/L	96.6	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	107	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	115	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	121	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	99.6	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1914810**	Page	: 1 of 4
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Telephone	: +61 7 3552 8639
Project	: 2127234	Date Samples Received	: 16-May-2019
Site	:	Issue Date	: 22-May-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	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	17	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	16	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	17	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	16	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*			*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)							
QC01	**13-May-2019**	**----**	----	----	**20-May-2019**	09-Nov-2019	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
QC01	**13-May-2019**	**----**	----	----	**21-May-2019**	10-Jun-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC01	**13-May-2019**	**17-May-2019**	20-May-2019	✓	**21-May-2019**	26-Jun-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC01	**13-May-2019**	**17-May-2019**	20-May-2019	✓	**22-May-2019**	26-Jun-2019	✓
Amber VOC Vial - HCl (EP080)							
QC01	**13-May-2019**	**20-May-2019**	27-May-2019	✓	**20-May-2019**	27-May-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC01	**13-May-2019**	**17-May-2019**	20-May-2019	✓	**22-May-2019**	26-Jun-2019	✓
Amber VOC Vial - HCl (EP080)							
QC01	**13-May-2019**	**20-May-2019**	27-May-2019	✓	**20-May-2019**	27-May-2019	✓
EP080: BTEXN							
Amber VOC Vial - HCl (EP080)							
QC01	**13-May-2019**	**20-May-2019**	27-May-2019	✓	**20-May-2019**	27-May-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	1	7	**14.29**	**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)	0	17	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	16	**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	7	**14.29**	**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	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	7	**14.29**	**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	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	7	**14.29**	**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)	0	17	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	16	**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 Laboratory: please tick →

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☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@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	**TURNAROUND REQUIREMENTS** (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☒ Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date):
OFFICE: Sydney		
PROJECT: 21-27234	**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
ORDER NUMBER:		
PROJECT MANAGER: Henry Luo	**CONTACT PH:** 02 9239 7044 / 0414 090 002	
SAMPLER: Terry Nham / [redacted]	**SAMPLER MOBILE:** 0403 261 883	
COC emailed to ALS? (YES / NO)	**EDD FORMAT (or default):**	
Email Reports to: henry.luo@ghd.com [redacted] terry.nham@ghd.com		
Email Invoice to (will default to PM if no other addresses are listed):		

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: 13.1 °C
Other comment:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Terry Nham (GHD)	[redacted] Balgowlah Road		Dep ALS Crows Nest
DATE/TIME: 15/5/2019	DATE/TIME: 15/5/19 4:25PM	DATE/TIME:	DATE/TIME: 15/5/19 1120am

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

13.1°C
Received 16/5 JUSTIN 3pm

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	QC01	13/5/2019	Water		9	X
				TOTAL		

Environmental Division Sydney
Work Order Reference
ES1914810

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	: **ES1917381**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Andrew Epps
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 7 3552 8639
Project	: 21-27234	Date Samples Received	: 06-Jun-2019 12:15
Order number	: 2127234	Date Analysis Commenced	: 11-Jun-2019
C-O-C number	: ----	Issue Date	: 13-Jun-2019 19:50
Sampler	: JAMES TOMLINSON, TERRY NHAM		
Site	:		
Quote number	: EN/005/18		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

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

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

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

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

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC01	----	----	----	----
				Client sampling date / time	05-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1917381-001	--------	--------	--------	--------
					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		**0.002**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.040**	----	----	----	----
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		**200**	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		**390**	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		**590**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC01	----	----	----	----
				Client sampling date / time	05-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1917381-001	--------	--------	--------	--------
					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		**380**	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		**210**	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		**590**	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		**380**	----	----	----	----
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	%		**21.7**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**46.2**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**71.7**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**48.0**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**74.6**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**78.4**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**92.3**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**108**	----	----	----	----
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	: **ES1917381**	Page	: 1 of 6
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Andrew Epps
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 7 3552 8639
Project	: 21-27234	Date Samples Received	: 06-Jun-2019
Order number	: 2127234	Date Analysis Commenced	: 11-Jun-2019
C-O-C number	: ----	Issue Date	: 13-Jun-2019
Sampler	: JAMES TOMLINSON, 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: 2399314)									
ES1917192-001	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	0.002	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	1.84	1.85	0.518	0% - 20%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.005	0.004	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	0.237	0.245	3.44	0% - 20%
ES1917517-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	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	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.009	0.008	18.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 2399316)									
ES1917192-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES1917469-007	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: 2401353)									
ES1917921-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2401353)									
ES1917921-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2401353)									
ES1917921-001	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

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: 2401353) - continued									
ES1917921-001	Anonymous	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: 2399314)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.2	85	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.8	84	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.4	85	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.4	81	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.4	83	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.9	82	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	92.8	81	117
EG035F: Dissolved Mercury by FIMS (QCLot: 2399316)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	90.1	83	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2396759)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	79.1	50	94
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	83.8	64	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	86.2	62	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	89.9	64	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	90.5	63	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	86.1	64	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	97.2	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	99.0	64	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	88.6	63	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	80.9	62	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	92.0	63	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	96.9	63	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	109	60	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	101	61	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	100	59	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2396760)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	83.7	70	113
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	87.9	81	111
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	88.7	67	117
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2401353)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	88.8	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2396760)								

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: 2396760) - continued								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	82.9	76	112
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	91.4	65	118
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	95.3	77	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2401353)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	87.2	75	127
EP080: BTEXN (QCLot: 2401353)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	92.1	70	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	93.9	69	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	86.5	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	75.4	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	81.5	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: 2399314)							
ES1917192-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	98.0	70	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	100	70	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	99.3	70	130
		EG020A-F: Copper	7440-50-8	----		70	130
		EG020A-F: Lead	7439-92-1	1 mg/L	102	70	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	99.1	70	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	98.7	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 2399316)							
ES1917192-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	102	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2401353)							
ES1917921-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	90.4	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2401353)							
ES1917921-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	89.3	70	130
EP080: BTEXN (QCLot: 2401353)							
ES1917921-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	88.6	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: 2401353) - continued							
ES1917921-001	Anonymous	EP080: Toluene	108-88-3	25 µg/L	91.4	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	88.4	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	87.4	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	91.0	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	95.0	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1917381**	Page	: 1 of 4
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Telephone	: +61 7 3552 8639
Project	: 21-27234	Date Samples Received	: 06-Jun-2019
Site	:	Issue Date	: 13-Jun-2019
Sampler	: JAMES TOMLINSON, TERRY NHAM	No. of samples received	: 1
Order number	: 2127234	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)							
QC01	**05-Jun-2019**	**----**	----	----	**12-Jun-2019**	02-Dec-2019	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
QC01	**05-Jun-2019**	**----**	----	----	**13-Jun-2019**	03-Jul-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC01	**05-Jun-2019**	**11-Jun-2019**	12-Jun-2019	✓	**12-Jun-2019**	21-Jul-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC01	**05-Jun-2019**	**11-Jun-2019**	12-Jun-2019	✓	**13-Jun-2019**	21-Jul-2019	✓
Clear glass VOC vial - HCl (EP080)							
QC01	**05-Jun-2019**	**12-Jun-2019**	19-Jun-2019	✓	**12-Jun-2019**	19-Jun-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC01	**05-Jun-2019**	**11-Jun-2019**	12-Jun-2019	✓	**13-Jun-2019**	21-Jul-2019	✓
Clear glass VOC vial - HCl (EP080)							
QC01	**05-Jun-2019**	**12-Jun-2019**	19-Jun-2019	✓	**12-Jun-2019**	19-Jun-2019	✓
EP080: BTEXN							
Clear glass VOC vial - HCl (EP080)							
QC01	**05-Jun-2019**	**12-Jun-2019**	19-Jun-2019	✓	**12-Jun-2019**	19-Jun-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)	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	1	9	**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	20	**5.00**	**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	9	**11.11**	**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	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	9	**11.11**	**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)	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	9	**11.11**	**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 →

☐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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☐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 REQUIREMENTS** ☐ Standard TAT (List due date): 3 DAY TAT	**FOR LABORATORY USE ONLY (Circle)** Custody Seal Intact? Yes No N/A
OFFICE: Sydney	(Standard TAT may be longer for some tests e.g., Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Free ice / frozen ice bricks present upon receipt? Yes No N/A
PROJECT: 21-27234	**ALS QUOTE NO.:** EN/005/18	**COC SEQUENCE NUMBER (Circle)** COC: 1 2 3 4 5 6 7
ORDER NUMBER: 2127234		OF: 1 2 3 4 5 6 7
PROJECT MANAGER: Henry Luo	**CONTACT PH:** 02 9239 7044 / 0414 090 002	Random Sample Temperature on Receipt: 6.4 °C
SAMPLER: Terry Nham / James Tomlinson	**SAMPLER MOBILE:** 0403 261 883	Other comment: Received.
COC emailed to ALS? (YES / NO)	**EDD FORMAT (or default):**	
Email Reports to: henry.luo@ghd.com james.tomlinson@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)	Grace Eurofins	Shakila	Shane ALS C.N
DATE/TIME: 5/6/2019	DATE/TIME: 5/6 3:45pm	DATE/TIME: 06/06/2019 4:00PM	DATE/TIME: 6/6 12.15pm

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	QC01	5/6/2019	Water		9	X
				TOTAL		

TAT

Environmental Division Sydney
Work Order Reference
ES1917381

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	: **ES1917968**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Andrew Epps
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 7 3552 8639
Project	: 21-27234	Date Samples Received	: 12-Jun-2019 10:30
Order number	:	Date Analysis Commenced	: 13-Jun-2019
C-O-C number	: 1	Issue Date	: 18-Jun-2019 13:43
Sampler	: TERRY NHAM, Tom Frederick		
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) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC03	----	----	----	----
				Client sampling date / time	06-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1917968-001	--------	--------	--------	--------
					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		**0.006**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.034**	----	----	----	----
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	QC03	----	----	----	----
				Client sampling date / time	06-Jun-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1917968-001	--------	--------	--------	--------
					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	%		**14.4**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**26.9**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**26.3**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**32.9**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**39.8**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**39.5**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**116**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**105**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**101**	----	----	----	----

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	: **ES1917968**	Page	: 1 of 6
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Contact	: Andrew Epps
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 7 3552 8639
Project	: 21-27234	Date Samples Received	: 12-Jun-2019
Order number	:	Date Analysis Commenced	: 13-Jun-2019
C-O-C number	: 1	Issue Date	: 18-Jun-2019
Sampler	: TERRY NHAM, Tom Frederick		
Site	:		
Quote number	: EN/005/18		
No. of samples received	: 1		
No. of samples analysed	: 1		

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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: 2408630)									
ES1917968-001	QC03	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	0.006	0.005	20.2	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.034	0.033	0.00	No Limit
ES1918132-001	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	0.002	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	1.20	1.17	2.33	0% - 20%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.043	0.044	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 2408631)									
ES1918132-001	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: 2402588)									
ES1917968-001	QC03	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
		EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	<1.0	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 (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2402588) - continued									
ES1917968-001	QC03	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: 2402589)									
ES1917968-001	QC03	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: 2403085)									
ES1917912-010	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES1917914-014	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2402589)									
ES1917968-001	QC03	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: 2403085)									
ES1917912-010	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES1917914-014	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2403085)									
ES1917912-010	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
ES1917914-014	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: 2408630)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.1	85	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.2	84	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.2	85	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.7	81	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.6	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: 2408631)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	98.1	83	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2402588)								
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	88.9	64	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	86.9	62	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	89.8	64	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	95.3	63	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	100	64	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	100	64	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	102	63	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	98.8	64	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	95.0	63	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	95.4	62	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	88.0	63	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	103	63	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	96.5	60	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	95.6	61	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	93.1	59	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2402589)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	78.9	70	113
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	86.0	81	111
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	82.7	67	117
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2403085)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	79.8	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2402589)								

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: 2402589) - continued								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	77.7	76	112
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	83.7	65	118
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	101	77	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2403085)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	76.8	75	127
EP080: BTEXN (QCLot: 2403085)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	84.0	70	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	84.9	69	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	74.6	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	74.4	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	73.7	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	97.8	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: 2408630)							
ES1917968-001	QC03	EG020A-F: Arsenic	7440-38-2	1 mg/L	126	70	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	122	70	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	119	70	130
		EG020A-F: Copper	7440-50-8	1 mg/L	118	70	130
		EG020A-F: Lead	7439-92-1	1 mg/L	128	70	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	120	70	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	124	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 2408631)							
ES1917968-001	QC03	EG035F: Mercury	7439-97-6	0.01 mg/L	98.7	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2402588)							
ES1917968-001	QC03	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	78.6	70	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	78.4	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2402589)							
ES1917968-001	QC03	EP071: C10 - C14 Fraction	----	200 µg/L	103	70	130
		EP071: C15 - C28 Fraction	----	250 µg/L	116	71	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*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2402589) - continued							
ES1917968-001	QC03	EP071: C29 - C36 Fraction	----	200 µg/L	84.7	67	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2403085)							
ES1917912-010	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	85.4	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2402589)							
ES1917968-001	QC03	EP071: >C10 - C16 Fraction	----	250 µg/L	97.2	70	130
		EP071: >C16 - C34 Fraction	----	350 µg/L	108	75	130
		EP071: >C34 - C40 Fraction	----	150 µg/L	114	67	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2403085)							
ES1917912-010	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	86.1	70	130
EP080: BTEXN (QCLot: 2403085)							
ES1917912-010	Anonymous	EP080: Benzene	71-43-2	25 µg/L	86.5	70	130
		EP080: Toluene	108-88-3	25 µg/L	82.7	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	83.4	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	79.9	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	90.5	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	: **ES1917968**	Page	: 1 of 4
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Telephone	: +61 7 3552 8639
Project	: 21-27234	Date Samples Received	: 12-Jun-2019
Site	:	Issue Date	: 18-Jun-2019
Sampler	: TERRY NHAM, Tom Frederick	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)							
QC03	**06-Jun-2019**	**----**	----	----	**17-Jun-2019**	03-Dec-2019	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
QC03	**06-Jun-2019**	**----**	----	----	**17-Jun-2019**	04-Jul-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC03	**06-Jun-2019**	**13-Jun-2019**	13-Jun-2019	✓	**14-Jun-2019**	23-Jul-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC03	**06-Jun-2019**	**13-Jun-2019**	13-Jun-2019	✓	**14-Jun-2019**	23-Jul-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC03	**06-Jun-2019**	**14-Jun-2019**	20-Jun-2019	✓	**14-Jun-2019**	20-Jun-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC03	**06-Jun-2019**	**13-Jun-2019**	13-Jun-2019	✓	**14-Jun-2019**	23-Jul-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC03	**06-Jun-2019**	**14-Jun-2019**	20-Jun-2019	✓	**14-Jun-2019**	20-Jun-2019	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC03	**06-Jun-2019**	**14-Jun-2019**	20-Jun-2019	✓	**14-Jun-2019**	20-Jun-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	1	8	**12.50**	**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	1	10	**10.00**	**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	8	**12.50**	**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	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	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	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	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	10	**10.00**	**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 Laboratory: please tick →

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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
NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 8448 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 14-16 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	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 Organics) ☐ 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 OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: 10.2 °C
PROJECT MANAGER: Henry Luo	CONTACT PH: 02 9239 7044 / 0414 090 002	Other comment:
SAMPLER: Terry Nham / Tom Frederick	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 thomas.frederick@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)		Grace	Chris R
DATE/TIME: 11/6/2019	DATE/TIME:	DATE/TIME: 12/6 10:30am	DATE/TIME: 12/6/19 12:30 PM

Rec: Sonia Mo ALS 12/6/19 1505 10.2°

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	QC03	6/6/19	Water		9	X
				TOTAL		

URGENT

Environmental Division Sydney
Work Order Reference
ES1917968

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 Presen
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	: **ES1924197**	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	: 21-27234	Date Samples Received	: 01-Aug-2019 15:00
Order number	:	Date Analysis Commenced	: 02-Aug-2019
C-O-C number	: ----	Issue Date	: 08-Aug-2019 16:01
Sampler	: TERRY NHAM, Tom Frederick		
Site	:		
Quote number	: EN/005/18		
No. of samples received	: 1		
No. of samples analysed	: 1		

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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) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC01	----	----	----	----
				Client sampling date / time	29-Jul-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1924197-001	--------	--------	--------	--------
					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		**0.005**	----	----	----	----
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		**0.040**	----	----	----	----
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	QC01	----	----	----	----
				Client sampling date / time	29-Jul-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1924197-001	--------	--------	--------	--------
					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	%		**26.0**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**58.8**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**92.1**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**96.4**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**88.4**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**92.9**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**94.4**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**107**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**105**	----	----	----	----

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	: **ES1924197**	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	: 21-27234	Date Samples Received	: 01-Aug-2019
Order number	:	Date Analysis Commenced	: 02-Aug-2019
C-O-C number	: ----	Issue Date	: 08-Aug-2019
Sampler	: TERRY NHAM, Tom Frederick		
Site	:		
Quote number	: EN/005/18		
No. of samples received	: 1		
No. of samples analysed	: 1		

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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: 2504537)									
ES1924273-001	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	<0.001	<0.001	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	0.156	0.169	7.64	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.005	0.006	0.00	No Limit
ES1924187-001	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	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	1.11	1.12	0.327	0% - 20%
		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	0.138	0.137	1.02	0% - 20%
EG035F: Dissolved Mercury by FIMS (QC Lot: 2504538)									
ES1923686-055	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES1924273-002	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: 2506938)									
ES1924413-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES1924476-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2506938)									
ES1924413-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES1924476-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2506938)									

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: 2506938) - continued									
ES1924413-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	3	3	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
ES1924476-004	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: 2504537)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.2	85	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.3	84	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	93.0	85	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.4	81	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	83	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	90.1	82	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.2	81	117
EG035F: Dissolved Mercury by FIMS (QCLot: 2504538)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	92.0	83	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2502963)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	67.0	50	94
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	70.3	64	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	75.5	62	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	81.9	64	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	92.2	63	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	83.6	64	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	92.1	64	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	92.1	63	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	77.6	64	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	88.5	63	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	76.6	62	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	72.6	63	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	87.1	63	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	84.0	60	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	83.2	61	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	89.0	59	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2502964)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	63.7	56	112
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	79.7	72	113
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	75.4	56	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2506938)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	95.0	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2502964)								

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: 2502964) - continued								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	71.5	58	119
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	77.3	63	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	63.4	62	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2506938)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	97.1	75	127
EP080: BTEXN (QCLot: 2506938)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	93.2	70	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	104	69	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	108	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	108	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	111	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	110	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: 2504537)							
ES1923686-040	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	124	70	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	129	70	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	130	70	130
		EG020A-F: Copper	7440-50-8	1 mg/L	123	70	130
		EG020A-F: Lead	7439-92-1	1 mg/L	129	70	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	122	70	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	129	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 2504538)							
ES1923686-019	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	110	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2506938)							
ES1924413-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	105	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2506938)							
ES1924413-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	103	70	130
EP080: BTEXN (QCLot: 2506938)							
ES1924413-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	94.2	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: 2506938) - continued							
ES1924413-001	Anonymous	EP080: Toluene	108-88-3	25 µg/L	102	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	106	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	106	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	108	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	102	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1924197**	Page	: 1 of 4
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR HENRY LUO	Telephone	: +61-2-8784 8555
Project	: 21-27234	Date Samples Received	: 01-Aug-2019
Site	:	Issue Date	: 08-Aug-2019
Sampler	: TERRY NHAM, Tom Frederick	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		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **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)							
QC01	**29-Jul-2019**	**----**	----	----	**02-Aug-2019**	25-Jan-2020	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
QC01	**29-Jul-2019**	**----**	----	----	**05-Aug-2019**	26-Aug-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC01	**29-Jul-2019**	**02-Aug-2019**	05-Aug-2019	✓	**05-Aug-2019**	11-Sep-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC01	**29-Jul-2019**	**02-Aug-2019**	05-Aug-2019	✓	**05-Aug-2019**	11-Sep-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC01	**29-Jul-2019**	**07-Aug-2019**	12-Aug-2019	✓	**07-Aug-2019**	12-Aug-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC01	**29-Jul-2019**	**02-Aug-2019**	05-Aug-2019	✓	**05-Aug-2019**	11-Sep-2019	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC01	**29-Jul-2019**	**07-Aug-2019**	12-Aug-2019	✓	**07-Aug-2019**	12-Aug-2019	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC01	**29-Jul-2019**	**07-Aug-2019**	12-Aug-2019	✓	**07-Aug-2019**	12-Aug-2019	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **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	19	**10.53**	**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	3	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	19	**5.26**	**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	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	19	**5.26**	**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	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	19	**5.26**	**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	3	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	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 Laboratory: please tick →

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☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
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CLIENT: GHD Pty Ltd	TURNAROUND REQUIREMENTS (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☒ Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date):
OFFICE: Sydney		
PROJECT: 21-27234	ALS QUOTE NO.: EN/006/18	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7
ORDER NUMBER:		
PROJECT MANAGER: Henry Luo	CONTACT PH: 02 9239 7044 / 0414 090 002	
SAMPLER: Terry Nham / Tom Frederick	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 thomas.frederick@ghd.com		
Email Invoice to (will default to PM if no other addresses are listed):		

FOR LABORATORY USE ONLY (Circle)
Custody Seal Intact? Yes / No / N/A
Ice/Ice Packs/Frozen Ice Bricks present upon receipt? Yes / No / N/A
Random Sample Temperature on Receipt: 16.2 °C
Other comments:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Terry Nham (GHD)	Lena D. Eurofins MGT		Step - ALS Crows Nest
DATE/TIME: 31/7/19	DATE/TIME: 31/07/19 1100 AM	DATE/TIME:	DATE/TIME: 01/08/19 1245 9.2°C

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ML ALS 1/8/19 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	QC01	29/7/19	Water		9	X
				TOTAL		

Environmental Division Sydney
Work Order Reference ES1924197

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	: **ES1931406**	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	: 26-Sep-2019 15:33
Order number	:	Date Analysis Commenced	: 30-Sep-2019
C-O-C number	: ----	Issue Date	: 04-Oct-2019 15:33
Sampler	: TERRY NHAM, Tom Frederick		
Site	: 21-27234 Central		
Quote number	: EN/005/19		
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*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

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

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

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

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

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC01	----	----	----	----
				Client sampling date / time	25-Sep-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1931406-001	--------	--------	--------	--------
					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		**0.008**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.048**	----	----	----	----
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	QC01	----	----	----	----
				Client sampling date / time	25-Sep-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1931406-001	--------	--------	--------	--------
					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	%		**25.0**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**58.6**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**45.8**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**89.7**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**82.0**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**64.6**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**106**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**85.4**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**84.9**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
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	: **ES1931406**	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	: 26-Sep-2019
Order number	:	Date Analysis Commenced	: 30-Sep-2019
C-O-C number	: ----	Issue Date	: 04-Oct-2019
Sampler	: TERRY NHAM, Tom Frederick		
Site	: 21-27234 Central		
Quote number	: EN/005/19		
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*
Alex Rossi	Organic Chemist	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: 2612702)									
ES1931351-014	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	0.089	0.090	1.46	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	0.002	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	0.003	0.003	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.005	0.00	No Limit
ES1931639-001	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	0.005	0.005	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.003	0.003	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	0.074	0.078	6.02	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.048	0.048	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 2612699)									
ES1931228-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES1931254-001	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: 2614717)									
ES1931307-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	20	30	39.6	No Limit
ES1931321-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2614717)									
ES1931307-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	30	40	0.00	No Limit
ES1931321-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2614717)									

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: 2614717) - continued									
ES1931307-004	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
ES1931321-001	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: 2612702)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.5	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.6	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	90.0	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	91.3	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	88.0	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	92.7	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	92.8	81.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 2612699)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.7	83.0	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2613001)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	69.1	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	73.6	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	69.6	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	70.2	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	77.8	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	69.5	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	93.4	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	91.8	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	71.2	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	77.1	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	70.2	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	89.1	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	83.7	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	86.8	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	88.8	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	83.9	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2613000)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	68.8	55.8	112
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	79.0	71.6	113
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	81.3	56.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2614717)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	98.5	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2613000)								

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: 2613000) - continued								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	75.5	57.9	119
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	81.8	62.5	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	78.3	61.5	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2614717)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	106	75.0	127
EP080: BTEXN (QCLot: 2614717)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	108	70.0	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	110	69.0	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	115	70.0	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	116	69.0	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	115	72.0	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	116	70.0	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: 2612702)							
ES1931384-001	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	128	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	115	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	117	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	123	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	117	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	118	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	116	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 2612699)							
ES1931188-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	81.1	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2614717)							
ES1931307-004	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	110	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2614717)							
ES1931307-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	107	70.0	130
EP080: BTEXN (QCLot: 2614717)							
ES1931307-004	Anonymous	EP080: Benzene	71-43-2	25 µg/L	99.6	70.0	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: 2614717) - continued							
ES1931307-004	Anonymous	EP080: Toluene	108-88-3	25 µg/L	99.5	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	103	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	107	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	105	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	89.7	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1931406**	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	: 26-Sep-2019
Site	: 21-27234 Central	Issue Date	: 04-Oct-2019
Sampler	: TERRY NHAM, Tom Frederick	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	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	16	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	19	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	19	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*			*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)							
QC01	**25-Sep-2019**	**----**	----	----	**30-Sep-2019**	23-Mar-2020	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
QC01	**25-Sep-2019**	**----**	----	----	**30-Sep-2019**	23-Oct-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC01	**25-Sep-2019**	**30-Sep-2019**	02-Oct-2019	✓	**02-Oct-2019**	09-Nov-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC01	**25-Sep-2019**	**30-Sep-2019**	02-Oct-2019	✓	**02-Oct-2019**	09-Nov-2019	✓
Clear glass VOC vial - HCl (EP080)							
QC01	**25-Sep-2019**	**03-Oct-2019**	09-Oct-2019	✓	**03-Oct-2019**	09-Oct-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC01	**25-Sep-2019**	**30-Sep-2019**	02-Oct-2019	✓	**02-Oct-2019**	09-Nov-2019	✓
Clear glass VOC vial - HCl (EP080)							
QC01	**25-Sep-2019**	**03-Oct-2019**	09-Oct-2019	✓	**03-Oct-2019**	09-Oct-2019	✓
EP080: BTEXN							
Clear glass VOC vial - HCl (EP080)							
QC01	**25-Sep-2019**	**03-Oct-2019**	09-Oct-2019	✓	**03-Oct-2019**	09-Oct-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	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	16	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	19	**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	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	16	**6.25**	**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	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	16	**6.25**	**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	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	16	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	19	**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.

Rec @ Crows Nest 5.2°C

CHAIN OF CUSTODY

ALS Laboratory: please tick →

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CLIENT: GHD Pty Ltd	TURNAROUND REQUIREMENTS: ☒ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: Sydney	(Standard TAT may be longer for some tests e.g.. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No (N/A)
PROJECT: 21-27234 Central	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: 5.2 °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 / Tom Frederick	SAMPLER MOBILE: 0403 261 883	RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	Terry Nham (GHD)	Shane Ellis		
Email Reports to: henry.luo@ghd.com terry.nham@ghd.com thomas.frederick@ghd.com		DATE/TIME: 26/9/19	DATE/TIME: 26/9/19 3:30pm	DATE/TIME:	DATE/TIME: 26/9/19 1845
Email Invoice to (will default to PM if no other addresses are listed):					

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 (Dissolved) (W-26)														
1	QC01	25/9/19	Water		9	X														
TOTAL																				

Environmental Division Sydney
Work Order Reference
ES1931405

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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.