









TOTAL E&P PNG LIMITED

# PAPUA LNG

## Upstream Environmental Impact Statement

### Volume 2: Environmental and Social Baseline

Part 11
Marine Water and Sediment Quality Baseline Report

TOTAL
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BMT WBM

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# Papua LNG Project

## Marine Water and Sediment Quality Baseline Report

**August 2017**

**Prepared for Total Exploration and Production PNG Limited**

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# Papua LNG Project - Marine Water and Sediment Quality Baseline Report

Prepared for Total E&P PNG Limited

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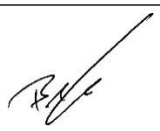
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**Synopsis:** **ESBS Technical Report prepared by BMT WBM for Papua LNG EIS/ESHIA for the following components: Marine Water and Sediment Quality**

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# Executive Summary

## Background

Total E&P PNG Limited (TEP PNG), a wholly owned subsidiary of TOTAL S.A. (TOTAL), is the largest partner in a joint venture to develop the Elk-Antelope gas field, located in Petroleum Retention License 15 (PRL-15) in Gulf Province, Papua New Guinea. This Project, known as the Papua LNG Project, will comprise upstream production well development and associated infrastructure at the gas field within PRL-15, construction of an upstream central processing facility (CPF) and delivery of gas and condensate via onshore and offshore export pipelines to a liquefied natural gas (LNG) plant site at Caution Bay, Central Province, 20 km northwest of Port Moresby.

This technical report provides the findings of a baseline study in relation to marine water and sediment quality in the study area. This technical report forms part of the Environmental and Social Baseline Study (ESBS) for the Project Environmental Impact Statement/Environmental, Social and Health Impact Assessment (EIS/ESHIA). The study area encompasses three sub-areas, namely (1) relevant parts of Orokolo Bay and offshore of the Purari River delta (collectively known as Orokolo Bay), (2) the nominal offshore export pipeline corridor through the Gulf of Papua (offshore export pipeline corridor), and (3) relevant parts of Caution Bay (Caution Bay).

The key objectives of the ESBS for marine water and sediment quality are to:

- Identify the national, international and corporate regulatory and policy framework for assessment of impacts to marine water and sediment quality, including the technical elements required to conduct an EIS/ESHIA.
- On the basis of a review of previous studies and data collection, describe baseline marine water and sediment quality conditions with reference to relevant guideline levels.

This report provides baseline marine water and sediment quality information which adheres to Papua New Guinea national standards, international environmental guidelines, including the International Finance Corporation (IFC) Performance Standards, and TOTAL company environmental performance specifications.

## Study Approach

Existing information was reviewed to characterize the marine water and sediment quality of the study area and to identify key information gaps requiring further assessment. This review found that:

- Seasonal water and sediment quality data is available for Caution Bay. This was collected as part of the PNG LNG Project EIS prior to construction and operation, and may not be representative of *current* baseline conditions. In addition, previous water quality studies sampled surface waters only, which does not provide a basis for assessing changes in water quality due to stratification.
- No water quality data are available for either Orokolo Bay or the offshore export pipeline corridor.
- Qualitative sediment quality data is available for the offshore export pipeline corridor but no physico-chemical data has been collected. In addition, no sediment quality data is known to be available for Orokolo Bay.

In order to supplement information gaps, two targeted field surveys were undertaken during nominal dry (20 June to 9 July 2016) and wet (12 to 31 January 2017) seasons.[1] The surveys involved:

[1] The nominal ‘dry’ season is also referred to as the southeast trade winds season while the ‘wet’ seasons is referred to as the northwest monsoon season.

(1) Sampling of in situ water quality parameters, including vertical profiling through the water column.

(2) Collection of water quality samples at surface, mid-column and bottom for further testing of analytical parameters.

(3) Collection of sediment quality samples for further testing of analytical parameters, although this was not undertaken at Caution Bay due to the risk of unexploded ordnances (UXOs).

(4) Deployment of water quality instruments at Orokolo Bay in order to collect continuous turbidity (NTU), conductivity, temperature and depth data.

Field surveys were not intended to provide a complete coverage of the entire study area but provide a representation of the marine water and sediment quality environment for the study area sufficient for the purposes of the EIS/ESHIA.

## Study Findings

The key findings of the baseline characterization are as follows:

- Water quality at Orokolo Bay is strongly influenced by freshwater discharges from the Purari River. The influence of these freshwater discharges is illustrated in the water quality profiling data which indicated lower electrical conductivity (EC) (~35,000 µS/cm) in surface waters (top 10 m) at monitoring sites at Orokolo Bay, compared to bottom waters in Orokolo Bay and other sites along the offshore export pipeline corridor and in Caution Bay (~55,000 µS/cm). The presence of this freshwater lens in the surface water layer (i.e. stratification) was more pronounced during the dry season survey relative to the wet season survey.
- The influence of Purari River discharges was greatest at the mouth, where EC in surface layers was ~2,000 µS/cm while EC in bottom waters was ~40,000 µS/cm. This data indicates the presence of a salt wedge at the mouth of the Purari River (i.e. freshwater overlying saline water). Furthermore, large spikes in turbidity at the Purari River mouth were coincident with a large slug of turbid water from rainfall in the Purari catchment.
- The deployed instrument data indicates that turbidity in Orokolo Bay is predominantly generated from wind and wave-driven resuspension, with lower turbidity during calmer weather conditions and higher turbidity during periods of higher winds weather conditions and rougher seas.
- Turbidity (NTU) and total suspended solids (TSS) levels were mostly lower during the dry season survey compared to the wet season survey at all sites. Turbidity levels were generally higher in Orokolo Bay compared to Caution Bay and along the offshore export pipeline corridor. This pattern was also indicated in the TSS data, with higher TSS levels at Orokolo Bay (up to 17 mg/L) compared to Caution Bay (up to 7 mg/L) and offshore export pipeline corridor sites (up to 14 mg/L).
- The tidal range in Orokolo Bay is approximately 1 m during neap tides and approximately 2 m during spring tides.
- Water temperature was fairly consistent at all sites, with temperatures between 26°C and 30°C. Slightly warmer temperatures (1 to 2°C higher) were recorded during the wet season survey, and slightly warmer temperature was recorded in surface waters at most sites.
- Water quality along the offshore export pipeline corridor is characterized by low turbidity (<10 NTU) and TSS (<15 mg/L), pH around 8.0, and low concentrations of metals/metalloids. Higher turbidity and TSS were generally found in bottom waters along the offshore export pipeline corridor. Water quality during both

the dry season and wet season surveys was relatively consistent throughout the water column, with dissolved oxygen levels greater than 80% saturation even at water depths greater than 50 m.

- Electrical conductivity and salinity at sites along the offshore export pipeline corridor were consistent through the water column during the dry season survey, but lower in surface waters during the wet season survey. This indicates that wet season freshwater flows (or rainfall in the Gulf of Papua) may have diluted the surface water layers (top 10 to 20 m) in the offshore marine areas at the time of sampling. During the wet season survey, the four monitoring sites at the eastern extent of the pipeline route had slightly different water quality to other sites, with higher EC and pH values compared to other sites along the pipeline corridor.
- Caution Bay sites had lower turbidity and TSS and higher dissolved oxygen than sites in Orokolo Bay and the offshore export pipeline corridor. This is likely due to the lack of freshwater inputs into Caution Bay and the area being more sheltered from southeast trade winds. Turbidity and TSS was higher during the wet season survey at Caution Bay.
- Dissolved oxygen levels were above 90% saturation at all sites during both surveys at Caution Bay, and all sites had low concentrations nutrients, metals/metalloids and hydrocarbons, with no exceedances of water quality guideline values.
- All sites along the offshore export pipeline corridor, including within Orokolo Bay and Caution Bay, had low concentrations of nutrients, with most results below laboratory limits of reporting during both surveys. The exceptions to this were ammonia, which was detectable at most sites (but less than toxicity-based water quality guidelines), and total phosphorus which was measurable on a number of occasions. Elevated levels of nutrients can result in nuisance algal growth (depending on a number of factors) however chlorophyll-a levels, which are indicative of phytoplankton growth, were low with most results being below the laboratory limit of reporting (<1 µg/L).
- Concentrations of metals/metalloids in the study area were mostly below limits of reporting or only present in low concentrations during the dry season and wet season surveys. The only exceedances of water quality guideline values were copper at one site at Orokolo Bay during the dry season survey and dissolved mercury at one site at Orokolo Bay during the wet season survey. However, the concentrations measured in these samples were just above the limit of reporting where large variations in analytical results can be expected to occur.
- Strontium was elevated; however, this is a constituent of seawater present at naturally high concentrations. Lower levels of strontium were observed in surface waters at Orokolo Bay during the dry season survey due to the presence of a freshwater lens in this area, consistent with observations from conductivity measurements.
- Total and dissolved concentrations of metals/metalloids were relatively consistent between dry and wet season surveys and between sites, with concentrations mostly similar between total and dissolved (except for aluminum and iron) and between different dissolved metals/metalloids (except for strontium). Strontium is a natural constituent of seawater and therefore typically found in high concentrations in the marine environment. Generally, concentrations of metals/metalloids were relatively similar in samples collected in surface, middle and bottom layers of the water column.
- Total metal/metalloid concentrations were generally similar to dissolved concentrations except for aluminum and iron which were higher, particularly in bottom waters during the dry season and the site nearest the mouth of the Purari River. This can be attributed to the higher levels of suspended sediment in these samples, which are naturally elevated in aluminum and iron.

- Concentrations of all hydrocarbon contaminants (polycyclic aromatic hydrocarbons, total petroleum hydrocarbons, benzene, toluene, ethylbenzene and xylene) along the offshore export pipeline corridor, including within Orokolo Bay and Caution Bay, were below the laboratory limits of reporting, and relevant water quality guideline values, at all sites during both seasons.
- Sediment quality data indicates that bed sediment composition at sites in the study area was predominantly silts and clays, with most sites having a proportion of silts and clays greater than 90%. The remaining proportion comprised sands (~5 to 10%). The exceptions to this were sites M7 and M45 in Orokolo Bay and Site M37 along the offshore export pipeline corridor near Yule Island, which had a much higher proportion of sands (55 to 66%). Site M45 at the Purari River mouth had the highest proportion of sand at 90%.
- Concentrations of metals/metalloids in sediment were relatively consistent between monitoring sites, with all concentrations below sediment quality guideline values. The exception to this is nickel, which exceeded the guideline value at all sites, and is attributed to naturally elevated background levels associated with geological origin.
- Results for sites M7 and M45 at Orokolo Bay and Site M37 along the offshore export pipeline corridor near Yule Island are slightly different to other sites in that they had lower concentrations of some metals (e.g. aluminum, copper, iron and nickel) and nutrients, reflecting the lower proportion of fine-grained sediments at these sites. This reflects the tendency of metals/metalloids and nutrients to bind more readily to finer sediment fractions than sands and gravels that are often dominated by silicates.
- Hydrocarbon concentrations in sediments at all sites were less than laboratory reporting limits.
- Overall, the study area supports a high level of water and sediment quality with no evidence of anthropogenic contamination, although with some naturally elevated concentrations of nickel in sediment. Turbidity and physicochemical properties of water is variable across seasons and the water column due to changes in sea state conditions and fluvial inflows, and also varies based on proximity to river mouths, such as the Purari, Vailala and Vaihua rivers.

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# 1 Introduction

## 1.1 Project Overview

Joint venture partners, Total E&P PNG Limited (TEP PNG) (40.13%), ExxonMobil (37.03% - through SPI (208) Limited (35.48%) and SPI Security Holdings Limited (4.55%)), and Oil Search Limited (22.84% - through PAC LNG Assets Limited (6.75%), Pac LNG International Limited (5.10%), Pac Overseas Limited (5%), Pac LNG Holdings Limited (3.49%) and Pac LNG Investments Limited (2.50%)) are planning the development of the Elk-Antelope gas fields located in Gulf Province, Papua New Guinea. The gas fields are located within Petroleum Retention License 15 (PRL-15). The Project will include infrastructure development inside PRL-15, and the construction of gas and condensate pipelines (export pipeline) to a liquefied natural gas (LNG) plant site at Caution Bay, 20 km northwest of Port Moresby.

The Project area comprises the physical footprint of the various Project components and associated infrastructure as detailed below (Figure 1-1).

- Production, processing and related facilities (within PRL-15):
  - Wellpads and the associated gathering system (including flowlines and trunkline).
  - Central processing facility (CPF).
  - Logistics base and river offloading facilities, accommodation camps, airstrip, roads and bridges.
  - Quarries and communications infrastructure.
  - Initial section of the onshore export pipeline.
- Onshore pipeline (outside PRL-15):
  - Remainder of the onshore export pipeline to landfall on the Gulf of Papua coast including valve stations.
  - Temporary laydown areas and camps.
  - Quarries, communications infrastructure.
- Transport (river) corridors:
  - River transport routes— the Purari, Urika-Ivo and Wame-Varoi rivers.
- Offshore pipeline:
  - Offshore section of the export pipeline to a LNG Plant site at Caution Bay.

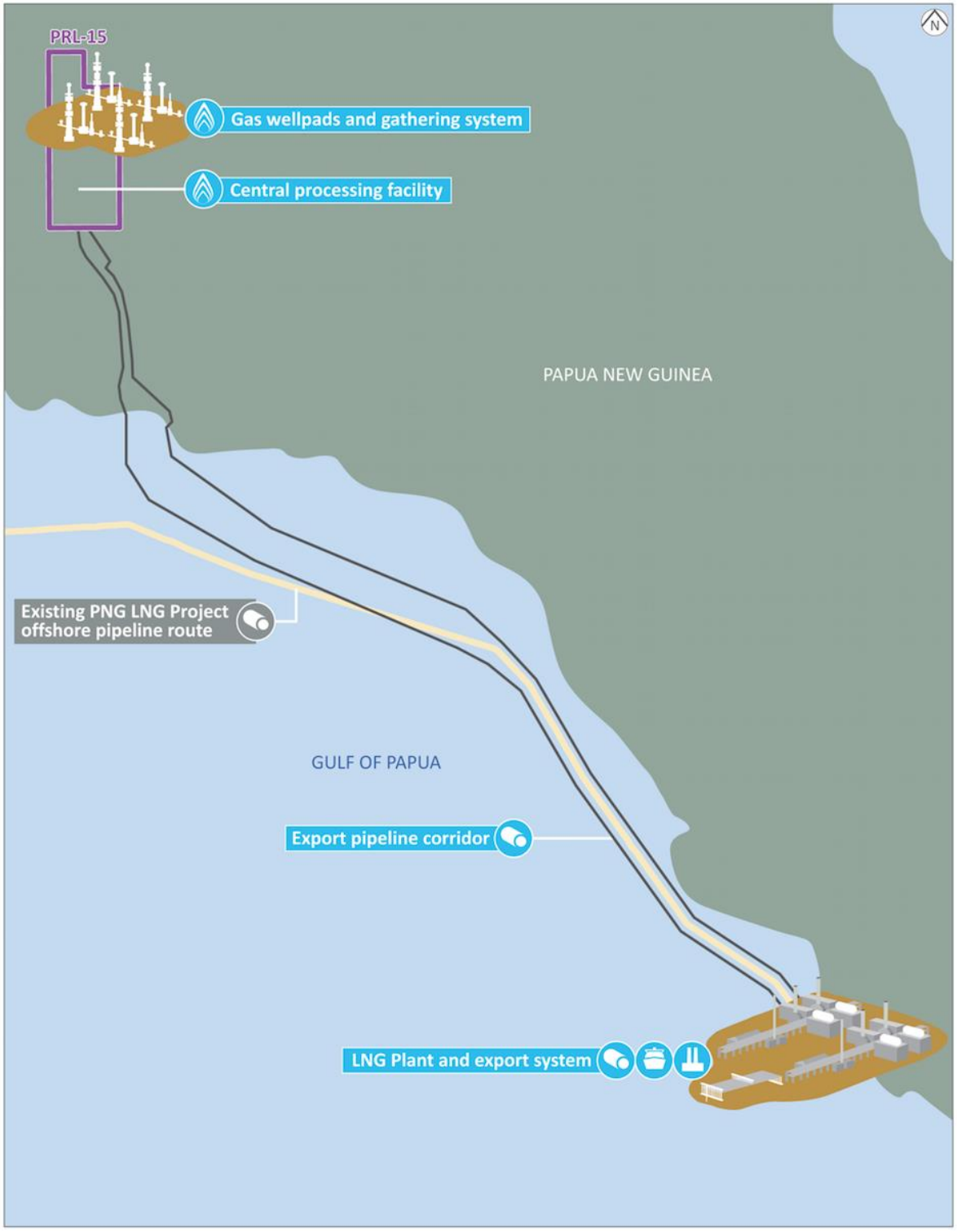



**Figure 1-1 Schematic of the Project**

## 1.2 Study and Objectives

This technical report describes the baseline marine water and sediment quality of areas potentially affected by the Project. This report is part of the marine water and sediment quality study for the Environmental Impact Statement, and the Environmental, Social and Health Impact Assessment (EIS/ESHIA) for the Project. This report is part of the Environmental and Social Baseline Study (ESBS) component of the EIS/ESHIA.

The study objectives of the marine water and sediment quality study are to:

- Characterize existing marine water and sediment quality of the study area.
- Inform development of hydrodynamic and water quality models.
- Support marine biodiversity and marine resource use (ecosystem services) assessments.
- Plan and execute baseline studies to collect sufficient data to underpin assessment of potential project impacts:
    - to satisfy International Finance Corporation (IFC, 2012) environment and social performance standards.
    - to meet Papua New Guinea requirements under the *Environment Act 2000*.
    - to meet TOTAL General Specifications, including GS EP ENV 112: Environmental Baseline and Monitoring Studies: Offshore and Nearshore Sites.

Within the context of these study objectives, this technical report achieves the following:

- Identifies the national, international and corporate regulatory and policy framework for assessment of impacts to marine water and sediment quality, including the technical elements required to conduct an EIS/ESHIA.
- On the basis of a review of previous studies and data collected through field surveys, describes baseline marine water and sediment quality conditions with reference to relevant guidelines.

# 2 Regulatory Framework and Standards

The Project is regulated primarily under the *Environment Act 2000* and the *Oil and Gas Act 1998* together with aspects of the suite of recently introduced Marine Pollution Acts. In addition, TEP PNG will be guided by company environmental performance specifications and international guidelines for the purposes of the EIS/ESHIA. Therefore, there are three sets of performance standards applicable to the EIS/ESHIA:

- Papua New Guinea legislation, including Conservation and Environmental Protection Authority (CEPA) operational procedures and codes of practice under the *Environment Act 2000*.
- International environmental and social guidelines, including the IFC Performance Standards on Environmental and Social Sustainability.
- TOTAL standards and commitments.

## 2.1 Papua New Guinean Authorities and Legislation

The following Papua New Guinean legislation is considered relevant for the purposes of the Project EIS/ESHIA:

- *Environment Act 2000*, including regulations and operational procedures/information guidelines.
- *Oil and Gas Act 1998*.
- Marine Pollution Acts, including:
  - *Marine Pollution (Preparedness and Response) Act 2013*.
  - *Marine Pollution (Sea Dumping) Act 2013* and Marine Pollution (Sea Dumping) Regulation 2013.
  - *Marine Pollution: Ships and Installations Act 2013*.

These instruments identify critical aspects of the EIS process, and criteria for the purposes of baseline comparison and impact assessment. These areas are discussed in more detail below.

### 2.1.1 Permit and Environmental Impact Assessment Requirements

An EIS in Papua New Guinea is required under the *Environment Act 2000* in order to assess and understand the potential environmental impacts of significant activities prior to the issue of an Environment Permit. In particular, an EIS is required for Level 3 Activities identified under the Environment (Prescribed Activities) Regulation 2002. The Project is a Level 3 Activity in accordance with Sub-Category 18 of the Regulation. The *Environment Act 2000* and EIS process is administered by CEPA.

Under the *Oil and Gas Act 1998* the issue of licenses for petroleum projects, including Petroleum Development Licenses (PDLs), Pipeline Licenses (PLs) and Petroleum Processing Facility Licenses (PPFLs) require consideration of environmental aspects and management actions. A PDL can only be issued where the Minister administering the Act is satisfied that the project provides for the protection of the environment and welfare of people in the project area. In practice, the Minister relies on the EIS developed under the *Environment Act 2000* in making this assessment. The Minister administering the Act is the Minister of the Department of Petroleum and Energy.

The *Marine Pollution (Sea Dumping) Act 2013* requires a Sea Dumping Permit for the purposes of placement of certain waste material within marine waters. This includes dredged material but only where material meets the contaminant guidelines set under the Marine Pollution (Sea Dumping) Regulation 2013; non-compliant material cannot be placed at sea. An application for a Sea Dumping Permit is considered separately to the application for an Environment Permit, though the assessment of dredged material contamination levels can be undertaken as part of an EIS. This process is administered by the National Maritime Safety Authority (NMSA).

The discharge of pollutants from installations and ships in the marine environment is prohibited under the *Marine Pollution (Ships and Installations) Act 2013* unless approved under an Environment Permit under the *Environment Act 2000*, assessed by CEPA.

In preparing an EIS and applying for an Environment Permit, a proponent is required to follow the process set out in operational procedures and guidelines prepared by CEPA. These include the following:

- Operational Procedure (2013): *Information Requirements for Permit Application & Registration of Intention to Carry Out Preparatory Works*.
- Information Guideline GL-ENV/02/2004: *Guideline for Conduct of Environmental Impact Assessment & Preparation of Environmental Impact Statement*.
- Information Guideline GL-ENV/03/2004: *Guideline for Submission of an Application for an Environment Permit to Discharge Waste.*
- Technical Guideline IB-ENV/04/2004: *Water & Land Discharges*.

In addition to the requirements of these guidelines, the *Marine Pollution (Prevention and Response) Act 2013* requires proponents for new petroleum-related facilities to undertake a marine pollution risk assessment as part of an EIS. This allows for marine pollution risks to be assessed as part of an Environment Permit application. A detailed marine pollution contingency plan must then be developed after the approval of the installation.

### 2.1.2 Environmental Assessment Criteria

Papua New Guinea legislation establishes environmental assessment criteria for water under Schedule 1 of the Environment (Water Quality Criteria) Regulation 2002. These criteria (provided in Section 5.5) are for ambient water quality required for the purposes of preserving aquatic life.

For the purposes of EIS/ESHIA, these criteria are the ‘benchmark’ intended to be achieved for the ambient environment beyond prescribed mixing zones. It is noted, however, that criteria have not been set for all water quality parameters measured as part of the baseline characterization.

The Marine Pollution (Sea Dumping) Regulation 2013 provides contaminant guidelines for dredged material proposed to be placed at sea. These criteria represent the ‘screening’ thresholds for dredged material, with any material that shows contaminant levels in excess of these thresholds requiring further assessment.

Outside of these contaminant screening criteria, there are no applicable Papua New Guinea environmental assessment criteria for sediment quality.

## 2.2 International Standards and Guidelines

TEP PNG has committed to preparing an EIS/ESHIA for the Project consistent with a number of international standards and guidelines. These are:

- Equator Principles and World Bank Safeguards.
- IFC Performance Standards.
- Organization for Economic Cooperation and Development (OECD) Common Approaches.
- International Petroleum Industry Environmental Conservation Association (IPIECA) Guidelines.
- Any international convention ratified by the Government of Papua New Guinea (that has not been given effect under legislation listed above).

In addition to these instruments, the following international guidelines have been used previously for benchmarking and/or assessment in Papua New Guinean EIS/ESHIA:

- Australian and New Zealand Fresh and Marine Water Quality Guidelines (ANZECC/ARMCANZ, 2000), which also include interim sediment quality guidelines.
- Simpson *et al*. (2013) revision to ANZECC/ARMCANZ (2000) interim guidelines for sediment quality.

These instruments provide ‘good practice’ guidance for environmental impact assessment and/or important assessment and benchmarking criteria for marine water and sediment quality.

### 2.2.1 Environmental Impact Assessment Requirements

Preparation of an ESHIA for the purposes of environmental due diligence is required under the World Bank Safeguards, Equator Principles and OECD Common Approaches. The IFC Performance Standards provide specific guidance on the ESHIA process.

IFC Performance Standard (PS) 1 establishes the framework for preparing an ESHIA in order to assess and manage the impacts from a particular activity. The remaining Performance Standards (PS2 to PS8) provide more detail on the assessment and management of impacts in particular areas, including pollution/discharges to the environment (PS3) and biodiversity conservation (PS6). The IFC Performance Standards are supplemented by Environmental, Health and Safety (EHS) guidelines which provide examples of good international industry practice (GIIP) for certain activities.

In accordance with the IFC Performance Standards an ESHIA is required to consider the risk of an activity to the environment within the activity’s ‘area of influence’. This includes consideration of the impacting processes in the relevant industry-specific EHS Guidelines.

Under PS 3, the ESHIA is required to describe the ambient environment conditions in the area of influence, including the assimilative capacity. This then forms the basis of assessing potential pollution impacts and for the setting of impact criteria. Performance Standard 6 requires the ESHIA to include a distinction between ‘modified’, ‘natural’ and ‘critical’ habitat in order to appropriately quantify and manage impacts to biodiversity and ecosystems services.

The IPIECA has prepared a number of guidelines for the petroleum industry to advise proponents on best practice related to ESHIA processes. These guidelines include a focus on biodiversity and ecosystem services, oil spill preparedness, and water. The key features of the most relevant of these guidelines include: locating and assessing sensitive areas (including protected areas, sensitive

habitats and rare, threatened or endangered species) as part of project planning; assessing baseline ecological conditions to inform the occurrence of and vulnerability to alien invasive species; and assessing the potential impacts of abstraction of and discharge to naturally-occurring water sources, including cumulative impacts and the effects of climate change.

### 2.2.2 Environmental Assessment Criteria

There are two types of relevant criteria provided by international guidelines: 1) ambient environment criteria (i.e. the parameters to be met for the receiving environment), and 2) discharge/emission criteria (i.e. criteria to be met in discharge streams).

International ambient environment criteria adopted for the project (provided in Section 5.5) come from the following guidelines:

- ANZECC/ARMCANZ (2000) – fresh and marine water quality (supplements the criteria from the Papua New Guinea Environment (Water Quality Criteria) Regulation 2002).
- Simpson *et al*. (2013) – freshwater and marine sediment quality.

Discharge criteria are derived from the following guidelines:

- EHS Guideline for Onshore Oil and Gas Development – effluent levels for drilling fluids and cuttings, produced sand, produced water, hydrotest water, completion and well work-over fluids, stormwater drainage and cooling water.
- EHS Guideline for LNG Facilities – effluent levels for hydrotest water, hazardous stormwater drainage, cooling water and sewage.
- EHS Guidelines for Crude Oil Petroleum Product Terminals – discharge limits for stormwater runoff and process effluent.

For the purposes of the ESBS Report, only ambient environment criteria are considered to be relevant. Discharge criteria will be considered as part of the Project impact assessment.

## 2.3 TOTAL Company Standards and Commitments

TOTAL has developed the following general specifications for the purpose of environmental impact assessment that are relevant to the Project EIS/ESHIA:

- GS EP ENV 120: Environmental Impact Assessment of E&P Activities.
- GS EP ENV 111: Environmental Baseline and Monitoring Studies: Onshore Sites.
- GS EP ENV 112: Environmental Baseline and Monitoring Studies: Offshore Sites.

GS EP ENV 120 provides details on the process for undertaking an environmental impact assessment and preparing an environmental management plan. The instrument adopts the ISO14001 approach for impact assessment and management. Some relevant specific requirements of the specification include:

- Identification of the physical, biological and socio-economic context of a project, including sensitivities of the environment.
- Assessment of impacts within an ‘area of influence’.
- Use of a modelling study (if relevant) to assess liquid effluent discharges dispersion.

The specifications also identify a methodology for impact assessment and contents of an environmental management plan (including oil spill contingency plan).

GS EP ENV 111 and GS EP ENV 112 specify the type of data to be collected for baseline purposes. These include physicochemical properties of marine sediment and water, rare and endangered species, and flora and fauna bioindicators.

# 3 Study Area

## 3.1 Study Area

The Project occurs across the northern and eastern ends of the Gulf of Papua, as shown in Figure 1-1. Studies are being undertake across much of this area as part of the EIS/ESHIA. For the purposes of this report, the 'study area' includes only the marine elements of the Project and surrounding area.

Figure 3-1 provides an overview of the study area. This includes the following three subsets:

- Coastal and nearshore environments at Orokolo Bay and offshore of the Purari River delta, located at and adjacent to the upstream segment of the offshore export pipeline corridor and offshore potential riverine transport routes along the Wame-Varoi, Urika-Ivo and Purari rivers. This area is located in the Gulf Province.
    - Orokolo Bay refers to the bay embayment between the eastern-most mouth of the Purari River delta and the mouth of the Vailala River.
    - Purari River delta represents the area between the Purari and Wame-Varoi river mouths.
- Offshore environments in the Gulf of Papua at and adjacent to the offshore segment of the export pipeline corridor (offshore export pipeline corridor). The western sediment of the offshore pipeline is located offshore from the Gulf Province whereas the eastern segment is located offshore from the Central Province.
- Marine environments at and adjacent to Caution Bay at the downstream end of the export pipeline (Caution Bay). This area is located in the Central Province region.

The waters in the study area include nearshore and offshore waters. For the purposes of this report, 'nearshore' waters are those between the mean high tide level and the 15 m water depth contour. 'Offshore' waters represent all waters seaward of the 15 m depth contour.

Figure 3-2 through Figure 3-4 show parts of Orokolo Bay, the Purari River delta and Caution Bay.




Title:

# Marine Water and Sediment Quality ESBS Study Area

Figure: 3-1

Rev: A

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Approx. Scale

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**Figure 3-2 Approach to Purari River Delta (June-July 2016)**



**Figure 3-3 Orokolo Bay (June-July 2016)**



**Figure 3-4 Caution Bay – View Northwest from Shore South of PNG LNG Jetty (June-July 2016)**

## 3.2 Climate

The following provides an overview of the climatic setting of the study area. More detailed climatic and meteorological information is provided in the Upstream Hydrology and Meteorology Baseline Report (BMT WBM, 2017a; Part 2 of ESBS Dossier) and the Physical Oceanography Baseline Report (BMT WBM, 2017b; Part 10 of ESBS Dossier).

### 3.2.1 Orokolo Bay, Purari River Delta and Western Offshore Export Pipeline Corridor (Gulf Province)

Seasonal wind patterns in the Gulf Province are the occurrence of southeast trade winds from April to November and lighter northwest monsoon winds from December to March. In contrast to Caution Bay, rainfall at Kerema (to the east of the study area) is not as strongly seasonal, with mean monthly totals ranging from 209 to 437 mm. May to October represent the wetter months with mean rainfall above 299 mm. The mean annual rainfall is 3,612 mm and mean evaporation rate 1,420 mm (Evesson, 1983).

The coolest month is August which has mean daily maximum and minimum temperatures of 27ºC and 22ºC respectively. The warmest months are December and January with a mean daily maximum temperature of 31ºC. There is little variation in the mean daily minimum (±1ºC) and maximum (±3.5ºC) temperatures throughout the year (Evesson, 1983).

The Gulf Province coast is north of the main cyclone belt.

### 3.2.2 Caution Bay and Eastern Offshore Export Pipeline Corridor (Central Province)

The main seasonal climate patterns of Caution Bay, within the Central Province, consist of:

- Dry season from May to October, with prevailing southeast trade winds.
- Wet season from December to March, when the lighter northwest monsoon winds prevail. Approximately 80% of the mean annual rainfall of 1,200 mm occurs during the wet season.
- Transition periods during April and November, when winds are generally calmer.

Monsoon surges with strong northwest winds have been observed in the region. These short-lived squalls of about one hour's duration with wind speeds of 55 to 65 km/hr are known as *gubas*.

The coolest months are July and August when the mean daily maximum and minimum temperatures are 28ºC and 23ºC respectively. The warmest months are December and January when the mean daily maximum and minimum temperatures are 32ºC and 24ºC respectively. There is little variation in the mean daily minimum (±1ºC) and maximum (±4ºC) temperatures throughout the year (CNS, 2009).

Caution Bay (i.e. the location of the LNG Plant and downstream supporting infrastructure) is north of the main cyclone belt and occurrence of such events in the Gulf of Papua is rare, with only five named cyclones in 15 years entering the Gulf, all situated well south of Caution Bay. Cyclones generally occur from February to April.

## 3.3 Anthropogenic Setting

The following provides an overview of the anthropogenic setting of the study area, including population distribution and marine-based activities. More detailed information is provided in the Upstream Community and Demographics Baseline Report (Finlayson, 2017; Part 14 of ESBS Dossier), Marine Fisheries and Resources Baseline Report (ERIAS Group, 2017a; Part 13 of ESBS Dossier), and Marine and River Traffic and Transport Baseline Report (ERIAS Group, 2017b; Part 22 of ESBS Dossier).

### 3.3.1 Orokolo Bay and Purari River Delta (Gulf Province)

Population patterns across Orokolo Bay and the Purari River delta are marked by a generally low inland population scattered or concentrated in small villages along riverbanks, and a much denser population in large villages and hamlets across the coastal strip. The principal villages in the Purari River delta and Orokolo Bay area are:

- Purari River delta: Akoma, Aivei and Apiope.
- Orokolo Bay: Harevavo and Hororo.

All coastal communities engage in subsistence fishing activities in nearshore and offshore waters, with some limited commercial fishing also occurring. These activities tend to occur in the coastal zone out to three nautical miles, beyond which commercial trawling occurs as part of the Gulf of Papua Prawn Fishery (see below). Fishing activities typically use small outrigger canoes and y-nets, with canoes primarily used to set gill nets but also to fish in deeper water with hook-and-line.

Subsistence and artisanal fishing activities are strongly seasonal, with fishing from outrigger canoes more restricted during the southeast trade winds due to the generation of dangerous sea conditions.

Limited shipping traffic occurs in Orokolo Bay and offshore of the Purari River delta as it is outside of existing commercial shipping channels, with the exception of boats from local villages (ERIAS Group, 2017b).

### 3.3.2 Offshore Export Pipeline Corridor

The offshore export pipeline corridor includes areas within the Gulf of Papua Prawn Fishery, regulated by the National Fisheries Authority (NFA). This fishery occurs at least three nautical miles offshore, following the 30 to 60 m depth contours, extend east as far as the village of Iokea (near the border of Gulf and Central provinces). Prawn trawling activities also occur further east of this, down to Caution Bay.

An artisanal dive fishery for rock lobster occurs on the coastal reefs around Yule Island where lobster annually migrate from Torres Strait to spawn during November to April

Various shipping traffic occurs within the Gulf of Papua, including a number of coastal vessels that cross the offshore export pipeline corridor. These include cargo, tanker and passenger vessels, as well as logging ships transiting between ports at Port Moresby, Baimuru, Kumul Marine Terminal, Kikori and Daru.

### 3.3.3 Caution Bay (Central Province)

Along the coastal strip of Caution Bay there are four villages: Lea Lea, Papa, Boera and Porebada. Each of these villages are populated by mixed populations of people from the Koita and Motu people groups. The population density across the area is 10 persons/km$^2$.

In addition to these villages, the ExxonMobil LNG Plant, part of the PNG LNG Project, occupies part of the coastal strip between Papa and Boera. This facility includes an LNG jetty and wharf that extend out into Caution Bay. Brine from desalination is discharged into the bay from a pipeline attached to this jetty, while hydrotest water (produced during construction phase only) was discharged to nearshore waters north of the LNG jetty.

Artisanal fisheries in Caution Bay are considered important for subsistence and income purposes for Lea Lea, Papa, Boera and Porebada. Fishing is primarily undertaken on inshore fringing reefs and shallow shoals, but is also undertaken in mangrove communities and barrier reefs. There is a high dependence on local communities on coastal and marine resources. Subsequent to the development on the LNG plant, a 500 m exclusion zone is maintained around the LNG jetty, restricting fishing activities in this area.

Most boat traffic in Caution Bay is associated with the local villages or with operations of the LNG Plant. Commercial shipping traffic, including commercial fishing vessels, occur beyond the outer reef, outside of Caution Bay.

# 4 Existing Information

The following section describes the previous studies that are considered relevant to the study area. The actual content of this literature has been integrated, as relevant, into the findings described in Section 6.

## 4.1 Prior Studies within the Study Area

### 4.1.1 Published Reports

The PNG LNG Project EIS, prepared by Coffey Natural Systems (2009) for ExxonMobil, included data collection and assessments within areas of the Gulf of Papua that overlap with the study area for this report. Figure 4-1 and Figure 4-2 show the relevant marine water and sediment data collection sites from this EIS.

### 4.1.2 Unpublished Reports

In addition to the published reports discussed in Section 4.1.1, other studies known to have occurred in the study area, but which have not been published, consist of:

- Marine water and sediment quality assessments conducted offshore of the Purari River delta as part of a revised version of the Purari Hydropower Project.
- Marine water and sediment quality assessments in Kerema Bay.

The information from these studies has been used, where relevant, in the preparation of this baseline report.

## 4.2 Studies in Neighboring Regions

The PNG LNG Project EIS (CNS, 2009) and the Pasca A Development Project EIS (ERIAS Group, 2016a) cover areas extending beyond the present study area. The EIS for the PNG LNG Project includes assessments undertaken in neighboring areas, i.e., the Kikori River delta and parts of the western Gulf of Papua, while the Pasca A Development Project EIS focuses on water and sediment within deep water (i.e. >90 m) areas of the gulf. Both of these studies provide a contextual understanding of the marine water and sediment quality in the gulf.

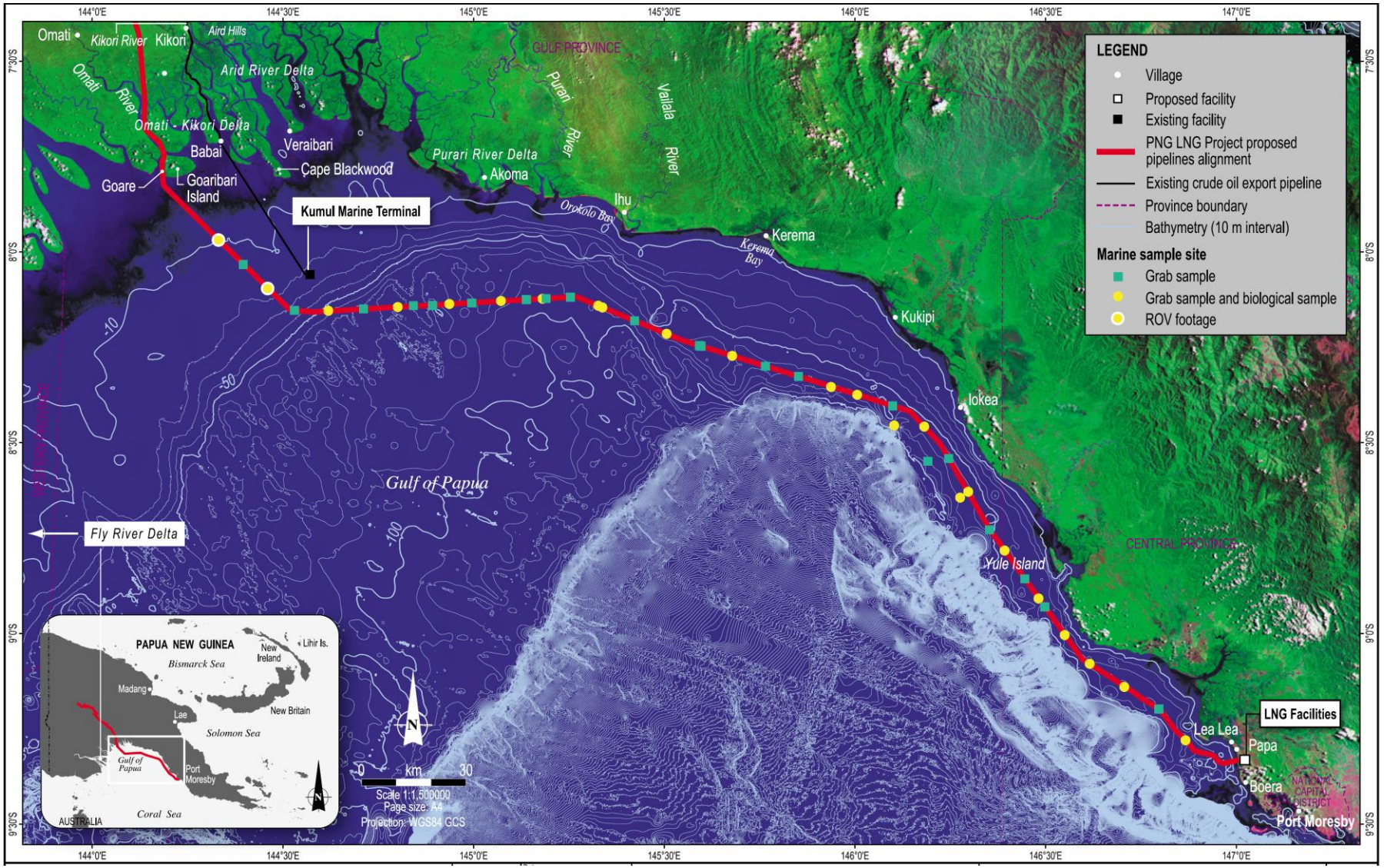



**Figure 4-1 Offshore Export Pipeline Corridor Sediment Quality Survey Sites – PNG LNG Project EIS (CNS, 2008a)**

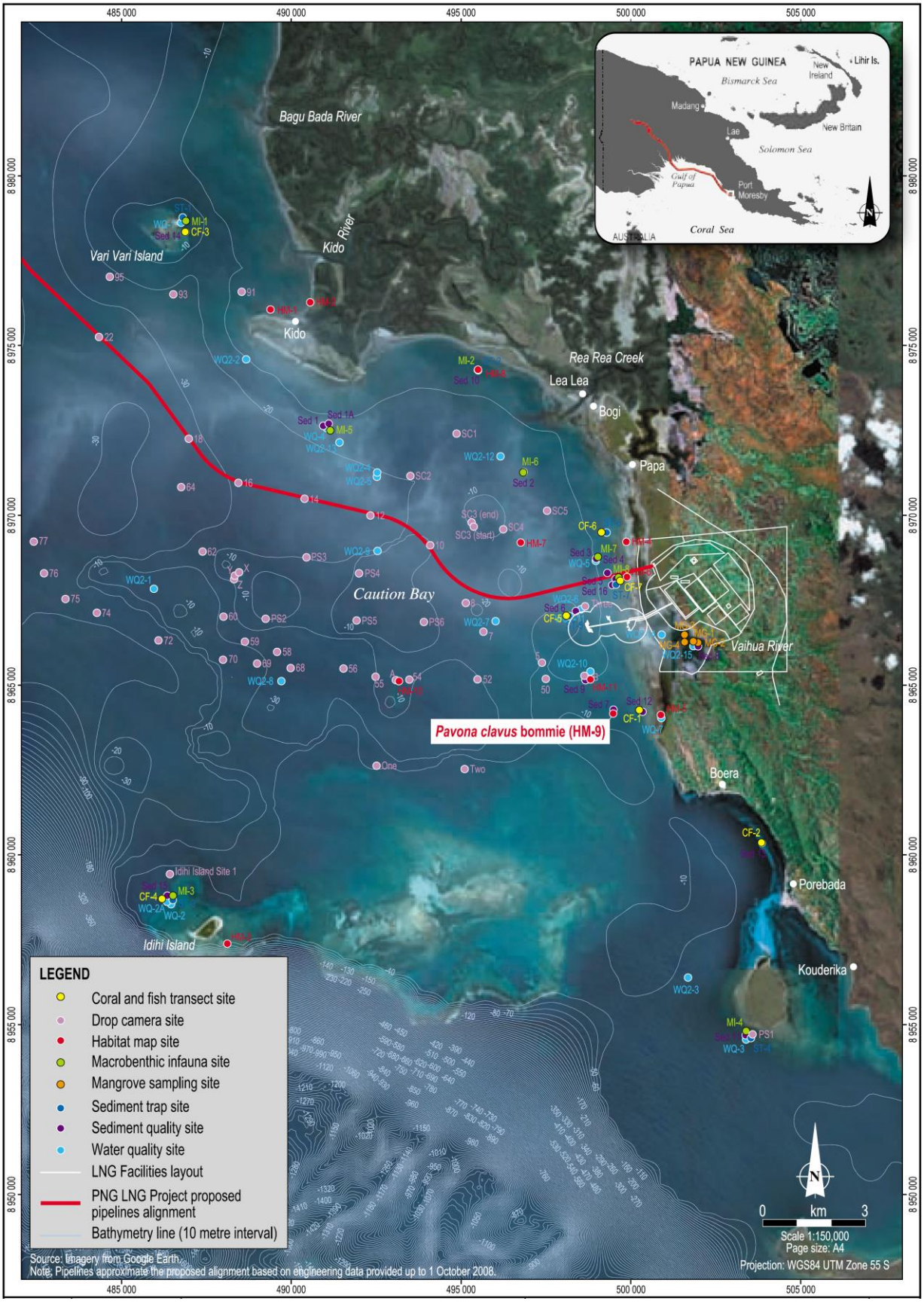



**Figure 4-2 Caution Bay Water and Sediment Quality Survey Sites – PNG LNG Project EIS (CNS, 2008b)**

## 4.3 Summary

Based on the studies cited above, the following existing information is known to be available for the study area:

- Seasonal water and sediment quality data for Caution Bay. This was collected as part of the PNG LNG Project EIS prior to construction and operation, and therefore may not be representative of *current* baseline conditions. In addition, previous water quality studies sampled surface waters only, which does not provide a basis for assessing water quality at different depths.
- Qualitative sediment quality data (samples collected for field assessment of sediment type, but no laboratory analysis undertaken) is available for the offshore export pipeline corridor but no physicochemical data has been collected.

No water quality data is available for either Orokolo Bay or the offshore export pipeline corridor.

Prior to the commencement of studies for the EIS/ESHIA it was uncertain whether sensitive receptors (e.g. coral reefs, seagrass meadows) occurred at Orokolo Bay. Where these receptors are present, seasonal water quality data provides an indication of impact thresholds beyond which negative effects may possibly occur.

Regional/adjoining information is available from Kerema Bay and the Kikori River nearshore areas. This provides some relevant information that can be used to contextualize the study area and/or can be extrapolated to assist with predictions for the study area.

# 5 Approach and Methods

This section provides a summary of the methods adopted for the desktop studies and field survey data collection. A complete description is provided within the scope and methods ('rationale') report for marine studies (ERIAS Group, 2016b) and relevant addendum (ERIAS Group, 2016c).

## 5.1 General Approach

The study approach was based on a review and analysis of existing information, together with targeted field surveys to address identified data gaps. Two field sampling events were completed between 20 June and 9 July 2016 and between 12 and 31 January 2017. Both desktop review and field surveys focused on obtaining the following information:

- Physicochemical properties, general water quality parameters, nutrients and contaminants in all marine waters within the study area – this provides a description of existing conditions for the purposes of the EIS/ESHIA and forms a basis for baseline data against which impacts can be monitored. In assessing marine water quality, particular focus was provided in regard to:
  - spatial changes of physicochemical properties associated with vertical stratification in the water column.
  - temporal changes of physicochemical properties associated with seasonality.
  - temporal changes in turbidity associated with tidal cycles.
- Physicochemical properties, organic carbon, nutrients and contaminants in marine sediment within the study area – this provides a description of existing conditions for the purposes of the EIS/ESHIA and forms a basis for baseline data against which impacts can be monitored.

The parameters that were analyzed for the study are listed in Table 5-1. This includes the limits of reporting (LORs) and analysis method employed by laboratories.

In undertaking the study, benchmarking of baseline water and sediment quality was undertaken against criteria established by Papua New Guinea legislation and international guidelines. These are described in Section 5.5.

Sampling focused on each of the three parts of study area described in Section 3.1, i.e. Orokolo Bay, offshore export pipeline corridor and Caution Bay.

## 5.2 Data Sources

The key data source utilized for desktop assessments was the publicly available data for the PNG LNG Project EIS. In addition, overlapping and regional studies described in Sections 4.1 and 4.2 were used as context for the study area.

**Table 5-1 Marine Water and Sediment Quality Parameters**

| Parameter | Analysis method | Limits of reporting |
|---|---|---|
| *Marine Water* | | |
| TSS | American Public Health Association (APHA) 2540 D (gravimetric, dried at 103-105ºC | 1 mg/L |
| BTEX/PAH | Gas chromatography-mass spectrometry | 1-5 µg/L |
| TPH | Gas chromatography-flame ionization detector | 20-100 µg/L |
| Chlorophyll a | APHA 10200 H | 1 mg/$m^3$ |
| Ammonia as N | APHA 4500 $NH_3$ - H (flow injection analysis phenate method) | 0.01 mg/L |
| Nitrite | APHA 4500-$NO_2$ I (flow injection analysis) | 0.01 mg/L |
| Nitrate | APHA 4500-$NO_2$ I (flow injection analysis) | 0.01 mg/L |
| Nitrite as N and Nitrate as N | APHA 4500-$NO_2$ I/$NO_3$ I (flow injection analysis) | 0.01 mg/L |
| Total phosphorous as P | APHA 4500 P - H (manual digestion and flow injection analysis) | 0.01 mg/L |
| Reactive phosphorous | APHA 4500 P - F (flow injection analysis) | 0.01 mg/L |
| Total nitrogen as N | APHA 4500 $N_{org}$/$NO_3$ (flow injection analysis) | 0.1 mg/L |
| Total metals (Al, As, Ba, Cd, Co, Cr, Cu, Fe, Ni, Pb, Sr, V, Zn) | APHA 3125B ORC/ICP/MS (octapole reaction cell/inductively coupled plasma – mass spectrometry | Cu, Ba: 1 µg/L<br>Cd, Co, Pb: 0.2 µg/L<br>As, Cr, Ni, V: 0.5 µg/L<br>Al, Zn: 5 µg/L<br>Sr: 10 µg/L |
| Hg | Cold vapor atomic absorption spectrometry | 0.0001 mg/L |
| *Marine Sediment* | | |
| Moisture | Gravimetric | 1% |
| PSD | Australian Standard (AS) 1289 3.6.3 (sieving and hydrometer) | 1% |
| Total phosphorous as P | APHA 4500 P - H (flow injection analysis) | 2 mg/kg |
| Total nitrogen as N | APHA 4500 $N_{org}$/$NO_3$<br>APHA 4500 $NO_2$/$_3$ (flow injection analysis) | 20 mg/kg |
| BTEX/PAH | United States Environmental Protection Agency (USEPA) 3640/827 | 0.2-1.0/0.5-2.0 mg/kg |
| TPH | USEPA 5030/8260 | 10-100 mg/kg |
| Organic matter and TOC | AS 1289.4.1.1 – 1997 / National Environment Protection Measures (NEPM) (high temperature combustion) | 0.5% |
| Total metals (Al, As, Ba, Fe, Sr) | USEPA 2002.2 (mod) (inductively coupled plasma – atomic emission spectrometry) | Al, Fe: 50 mg/kg<br>As: 5 mg/kg<br>Sr: 2 mg/kg<br>Ba: 10 mg/kg |
| Total metals (Cd, Co, Cr, Cu, Pb, Ni, V, Zn) | USEPA 6020 | Zn: 0.5 mg/kg<br>V: 1 mg/kg<br>Others: 0.1 mg/kg |
| Total Hg | APHA 3112 Hg-B | 0.1 mg/kg |

## 5.3 Field Survey

### 5.3.1 Sampling Activities

Two field surveys were undertaken in order to supplement existing information on marine water and sediment quality in the study area. These were undertaken in June-July 2016 and January 2017. The methodology for these field activities are described in the marine studies scope and methods ('rationale') (ERIAS Group, 2016b) and addendum (ERIAS Group, 2016c).

Sampling activities consisted of the following activities:

***Marine water quality***

- Collection of site-based in situ water quality data across the entire depth profile using a calibrated YSI probe, and visual observations of surface conditions. Data collected using instrument included temperature, pH, salinity, electrical conductivity (EC), dissolved oxygen (DO) and turbidity. Visual observations were made of color, smell, algae presence, iridescence, bacterial aggregates, rubbish, and precipitates.
- Deployment of calibrated water quality instruments on the seabed at Orokolo Bay to continuously measure and log turbidity, conductivity, temperature and depth data for part of the field survey.
- Collection of marine water samples for analytical testing of the parameters listed in Table 5-1. Samples were taken, at a minimum, at the surface and sea floor, with additional mid-water samples taken at particular sites (of greater water depth).

***Marine sediment quality***

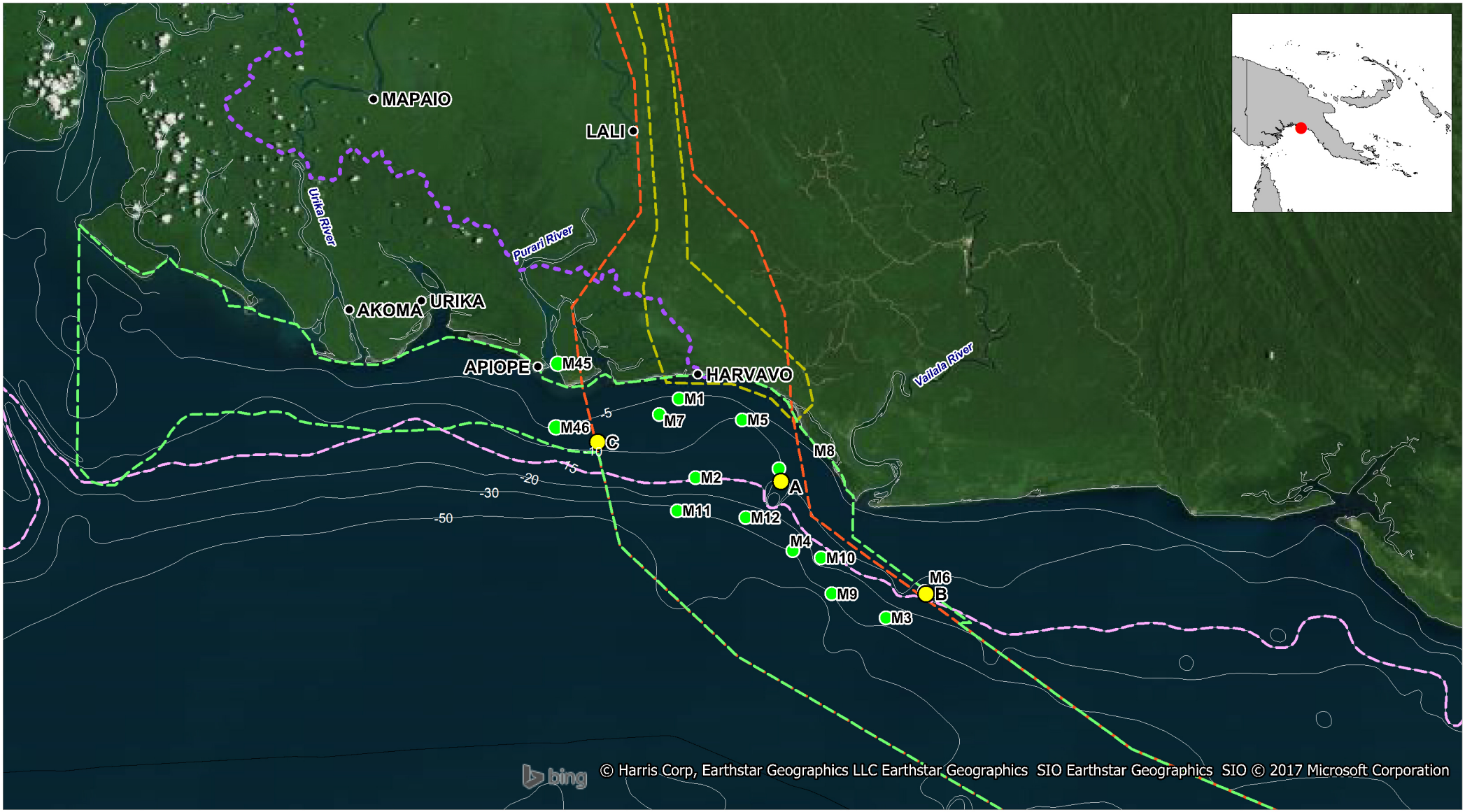
- Collection of marine sediment samples for analytical testing of the parameters listed in Table 5-1.

Plates of sampling techniques are shown in Appendix A.

All marine water quality sampling activities were undertaken as part of both surveys (water quality is typically influenced by seasonal fluctuations), while sediment sampling activities were once-off (sediment quality is not typically influenced by seasonal fluctuations), with most samples collected during the June-July 2016 survey. Due to the risk of unexploded ordnances (UXOs), sediment sampling was not undertaken at Caution Bay.

A total of 49 sites were sampled across both surveys, with a summary of the rationale for site selection provided in Section 5.3.2. The sites are shown in Figure 5-1 to Figure 5-3 and listed in Table 5-2. Table 5-3 summarizes the activities undertaken at each location.

Field surveys were conducted from a live-aboard research vessel, the *Browse Enterprise*.




## LEGEND

- Town/Village
- Water and Sediment Sites
- Instrument Sites
- ESBS Study Area
- Nearshore/Offshore Waters Boundary
- Indicative Estuarine/ Freshwater Boundary
- Pipeline Corridor
- Narrowed Onshore Pipeline Corridor
- -5 Contours (m)

Title:

# Survey Sites – Orokolo Bay

Figure: **5-1**

Rev: **A**

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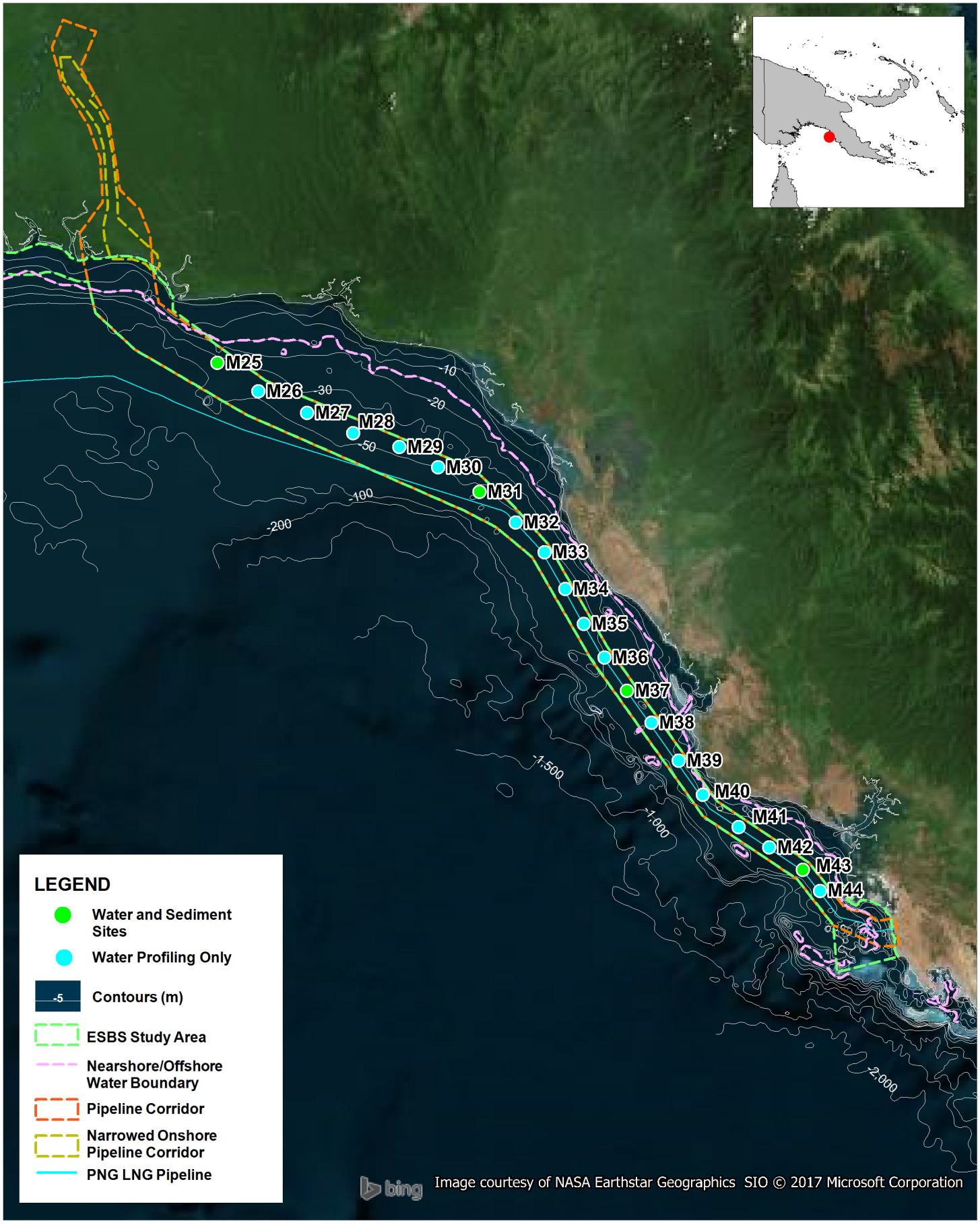
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Title:

# Survey Sites – Offshore Pipeline Corridor

Figure: **5-2**

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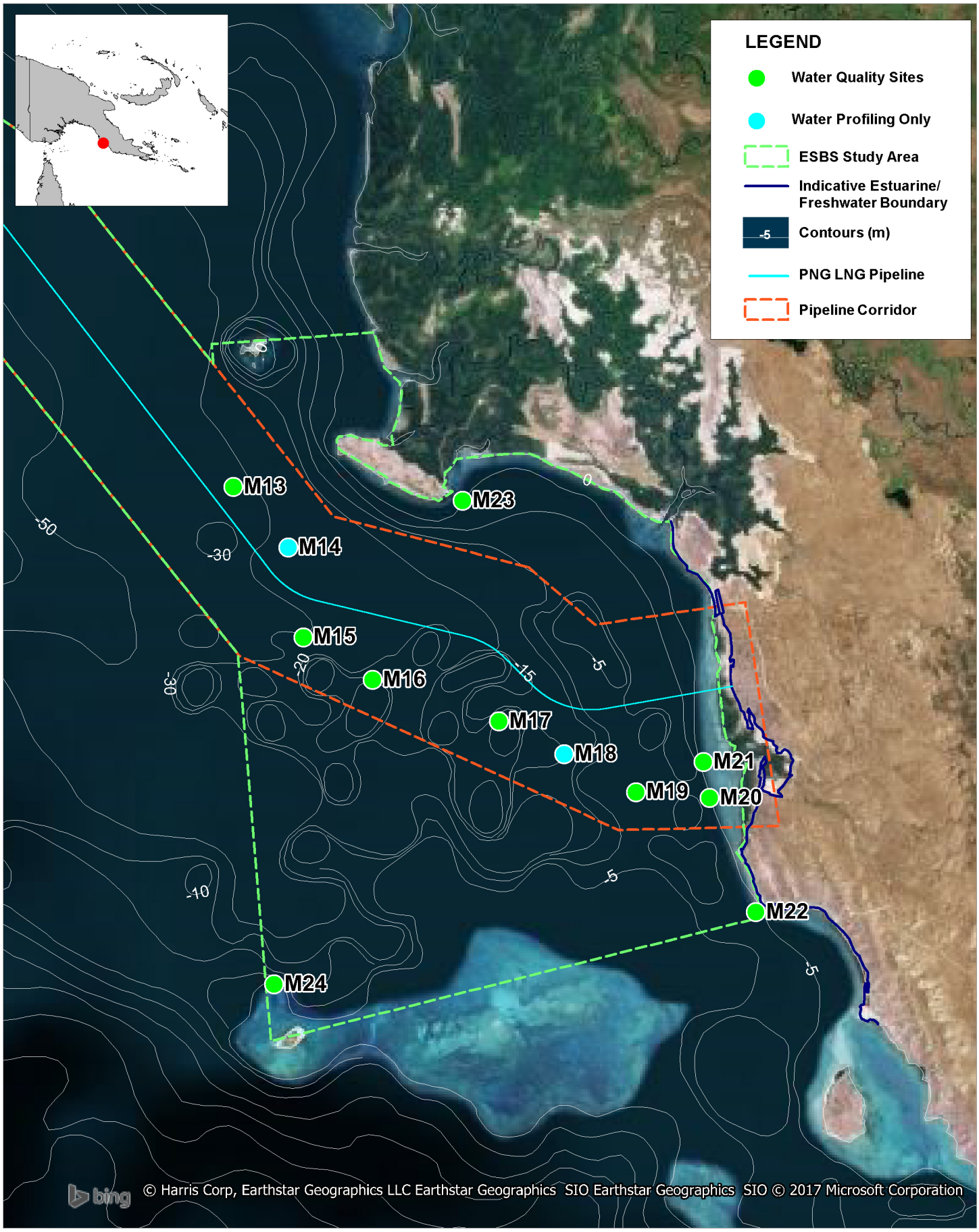
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Title:

# Survey Sites – Caution Bay

Figure: **5-3**

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**Table 5-2 Sampling Site Coordinates and Depths**

| No. | Coordinates* | Maximum depth | No. | Coordinates* | Maximum depth |
|---|---|---|---|---|---|
| *Orokolo Bay (sampling)* | | | *Orokolo Bay (instrument deployment)* | | |
| M1 | -7.870057, 145.27448 | 6.3 m | A | -7.930508, 145.349525 | - |
| M2 | -7.927804, 145.286573 | 16.6 m | B | -8.012644, 145.456755 | - |
| M3 | -8.030354, 145.427321 | 27.4 m | C | -7.901679, 145.214250 | - |
| M4 | -7.981364, 145.358308 | 27.5 m | *Offshore export pipeline corridor* | | |
| M5 | -7.885546, 145.321091 | 8.9 m | M25 | -8.084702, 145.501914 | 24.6 m |
| M6 | -8.011039, 145.455618 | 12.3 m | M26 | -8.147329, 145.592558 | 46.2 m |
| M7 | -7.881584, 145.361872 | 7.5 m | M27 | -8.195253, 145.701121 | 41.9 m |
| M8 | -7.921208, 145.259665 | 10.9 m | M28 | -8.240063, 145.803743 | 48.9 m |
| M9 | -8.012703, 145.387214 | 26.4 m | M29 | -8.269933, 145.906365 | 49.2 m |
| M10 | -7.986407, 145.379265 | 21.1 m | M30 | -8.314733, 145.99314 | 52.6 m |
| M11 | -7.952096, 145.273035 | 26.7 m | M31 | -8.368488, 146.084444 | 53.8 m |
| M12 | -7.956869, 145.32362 | 24.8 m | M32 | -8.435670, 146.165183 | 60.4 m |
| M45 | -7.844326, 145.184641 | 7.2 m | M33 | -8.501348, 146.230075 | 59.0 m |
| M46 | -7.890951, 145.183274 | 6.8 m | M34 | -8.581938, 146.27535 | 63.7 m |
| *Caution Bay* | | | M35 | -8.659201, 146.316514 | 63.1 m |
| M13 | -9.277466, 146.869846 | 22.8 m | M36 | -8.732625, 146.36288 | 52.7 m |
| M14 | -9.293712, 146.884815 | 22.2 m | M37 | -8.805708, 146.412682 | 45.1 m |
| M15 | -9.317768, 146.888878 | 30.7 m | M38 | -8.875795, 146.467011 | 35.5 m |
| M16 | -9.329183, 146.907774 | 31.2 m | M39 | -8.959286, 146.528131 | 35.0 m |
| M17 | -9.340335, 146.942079 | 28.7 m | M40 | -9.033815, 146.581707 | 30.5 m |
| M18 | -9.349162, 146.959855 | 22.3 m | M41 | -9.105348, 146.660935 | 52.0 m |
| M19 | -9.359326, 146.979414 | 19.1 m | M42 | -9.150049, 146.729602 | 42.3 m |
| M20 | -9.360864, 146.999434 | 7.4 m | M43 | -9.198948, 146.804434 | 43.8 m |
| M21 | -9.341529, 146.987706 | 8.2 m | M44 | -9.244915, 146.842235 | 39.4 m |
| M22 | -9.391556, 147.011961 | 10.5 m | | | |
| M23 | -9.281133, 146.932183 | 5.0 m | | | |
| M24 | -9.410869, 146.880965 | 15.9 m | | | |

*Coordinates used are based on World Geodetic System (WGS) 1984 and projection Universal Trans Mercator (UTM) Zone 55 South

**Table 5-3 Summary of Marine Water and Sediment Sampling Activities**

| Sampling activity | Sites | Survey | Notes |
|---|---|---|---|
| *Marine water quality* | | | |
| In situ water quality data collection and visual observations | M1-M44 | June July 2016 | |
| | M1-M46 | January 2017 | Sites M45 and M46 were added between the two field surveys |
| Continuous water quality measurement and logging | A, B | June-July 2016 | |
| | B, C | January 2017 | Site C replaced Site A in order to provide continuous water quality data near mouth of Purari River |
| Collection of marine water samples for analytical testing – surface, mid and bottom (i.e. 3x samples) | M3-M5, M9, M11-M13, M25, M31, M37, M43 | June-July 2016 | |
| | M3, M9, M11-M13, M15-M16, M25, M31, M37, M43, M45-M46 | January 2017 | Sites M45 and M46 were added between the two field surveys |
| Collection of marine water samples for analytical testing – surface and bottom (i.e. 2x samples) | M1-M2, M5-M8, M10, M17, M19, M21-M22 | June-July 2016 | |
| | M1-M2, M5-M8, M10, M17, M19, M21-M24 | January 2017 | |
| *Marine sediment quality* | | | |
| Collection of sediment samples for analytical testing | M1-M12, M25, M31, M37, M43 | June-July 2016 | No sediment sampling was possible at Caution Bay due to risk of unexploded ordnances |
| | M45-M46 | January 2017 | Sites M45 and M46 were added between the two field surveys |

### 5.3.2 Site Selection

Sites were selected for the field survey in order to provide sufficient level of data to characterize the existing environment of the study area. As a final description of marine infrastructure alignments has not yet been made, it is not possible to distinguish between ‘reference’ and ‘impact’ sites across most of the study area. However, survey sites at Orokolo Bay and Caution Bay have been sufficiently distributed to ensure that once infrastructure alignments are finalized, a clear distinction between reference and impact sites can be made.

**Orokolo Bay**

For Orokolo Bay, sampling sites M1 to M12 were identified in order to provide the greatest level of overlap with acoustic survey lines undertaken for the purposes of benthic habitat mapping; these are described in the Marine Biodiversity Baseline Report (BMT WBM, 2017c; Part 11 of ESBS Dossier). These sites have been distributed in order to reflect changes in depth and distance from the mouths of the Purari and Vailala rivers, both of which may have impacts on water and/or sediment quality.

Sampling sites M45 to M46 were added between the first and second surveys in order to allow for additional characterization of the water and sediment quality in the Purari River either side of the bar at the mouth. Site M45 was located immediately upstream of the bar in the main channel of the river (Aievi Passage), while Site M46 was located offshore of the bar, at the 5 m depth contour.

Instrument-deployment sites A, B and C were originally selected based on the presence of seabed 'rises' indicated by the Admiralty Charts for Orokolo Bay. These rises were expected to represent rocky reefs which could support important biodiversity values (e.g. coral species). Such 'sensitive receptors' are considered important for continuous water quality measurements as they represent the ecological values most sensitive to impacts associated with changes in water quality (i.e. turbidity). However, investigations during the first survey identified that the Admiralty Charts for the area were not accurate and no seabed rises or rocky reefs were present at these sites. During the first survey, Site B was therefore moved to Site M6 where a rocky reef was identified while Site A was moved to a central location in the nearshore waters of the bay. During the second survey, an instrument was deployed at Site C rather than Site A since there were no biologically important features at Site A. Site C was chosen in order to provide information on the influence of the Purari River on turbidity in Orokolo Bay as this site is directly opposite the Purari River mouth.

**Offshore Export Pipeline Corridor**

Twenty sites were identified and spaced evenly across the offshore export pipeline corridor. This allowed for understanding of any changes in water quality along the corridor. Every sixth site was selected for sediment quality sampling in order to understand changes at periodic intervals in sediment characteristics.

**Caution Bay**

Within Caution Bay, sites M13 to M21 were selected as sampling sites distributed across a variety of depths within the offshore export pipeline corridor. Where possible, these sites were co-located with known coral reef assemblages (representing sensitive receptors in Caution Bay) or at sites previously sampled for the PNG LNG Project EIS, allowing for comparison of results.

In addition to these sites, sites M22 to M23 were selected as likely 'reference' sites due to their distance from the likely location of the export pipeline. Each of these sites is located at similar depths to sites within export pipeline corridor (most less than <15 m water depths) but at locations representing different environments, as follows:

- Site M23 – located north of the corridor, in the embayment formed by Redscar Head, characterized by nearshore seagrass meadows.
- Site M22 – located south of the corridor, immediately adjacent to mangrove-dominated coastline.
- Site M24 – located south of the corridor, adjacent to coral reef communities of Idihi Island.

These three locations characterize the different types of environment within Caution Bay for the purposes of understanding local water quality.

## 5.4 Permits Obtained

All water and sediment quality samples collected during field surveys were tested at Australian laboratories, therefore a Permit to Import was required to import the samples into Australia. The laboratory used for analysis, Australian Laboratory Services (ALS), holds the relevant permits and no additional permits were required to be obtained.

## 5.5 Water and Sediment Quality Guidelines

As described in Section 2, various water and sediment quality criteria and guidelines were used to describe the existing quality of marine water and sediment. These are summarized in Table 5-4 below.

**Table 5-4 Relevant Water and Sediment Quality Guidelines for Benchmarking**

| Guideline | Abbreviated form | Relevance |
|---|---|---|
| Schedule 1 of the Environment (Water Quality Criteria) Regulation 2002 | PNG ER | Legally enforceable water quality criteria, typically adopted for Environment Permit conditions (discharge and receiving water quality). |
| ANZECC/ARMCANZ (2000) Water Quality Guidelines | ANZECC | International good practice guidelines, providing 'trigger values' for the protection of aquatic species.<br>**NOTE**: For the purpose of the ESBS, trigger values for the 95% level of species protection have been adopted as this level of protection is typically used for slightly to moderately disturbed ecosystems where biological communities are in healthy condition and ecosystem integrity is largely retained. Less stringent (90% and 80% level of protection) and more (99% level of protection) stringent levels are also available, with the former usually used for highly disturbed ecosystems and the latter used for high conservation pristine environments. |
| Schedule 2 of the Marine Pollution (Sea Dumping) Regulation 2014 | PNG MPR | Screening criteria for dredged material proposed to be placed at sea. |
| Simpson *et al.* 2013 Sediment Quality Guideline Values | SQGV | International good practice guidelines representing concentration levels of contaminants in sediment relative to ecotoxicological effects. The standard SQGV criteria are concentrations below which effects are not expected; the SQG-High criteria are concentrations above which effects could occur. |

The criteria under these guidelines are used for the purposes of 'benchmarking' the existing environment, noting that criteria from Papua New Guinea regulations are legally enforceable water quality criteria, typically adopted for Environment Permit conditions (discharge and receiving water quality). However, these standards are based on water quality criteria that may not be protective of aquatic ecosystems based on the current state of knowledge of toxicant exposure to biota. In accordance with good international industry practice, assessment is also undertaken using more recent international guidelines provided by ANZECC/ARMCANZ (2000).

The criteria and guidelines are presented in Table 5-5 (water) and Table 5-6 (sediment).

**Table 5-5 Ambient Receiving Water Quality Criteria and Guideline Values**

| Parameter | Units | PNG ER[1] | ANZECC[2] |
|---|---|---|---|
| Temperature | °C | No alteration >2°C | - |
| Dissolved Oxygen | % sat | - | >90 |
| | mg/L | >5 | - |
| Turbidity | NTU | No alteration >25 | - |
| Electrical Conductivity | µS/cm | - | - |
| pH | - | No alteration to natural pH | 8.0 - 8.4 |
| Total Suspended Solids | mg/L | - | - |
| Total coliforms | CFU/100mL | - | - |
| Potassium (K) | mg/L | 450 | - |
| Sulfate ($SO_4^{2-}$) | mg/L | - | - |
| Silver (Ag) | µg/L | 50 | 1.4 |
| Aluminum (Al) | µg/L | - | - |
| Arsenic (As) as As III | µg/L | 50 | - |
| Barium (Ba) | µg/L | 1,000 | - |
| Cadmium (Cd) | µg/L | 1 | 0.7^ |
| Chromium (Cr) as Cr VI | µg/L | 10 | 4.4 |
| Cobalt (Co) | µg/L | Limit of detection | 1 |
| Copper (Cu) | µg/L | 30 | 1.3 |
| Iron (Fe) | µg/L | 1,000 | - |
| Lead (Pb) | µg/L | 4 | 4.4 |
| Mercury (Hg) | µg/L | 0.2 | 0.1^ |
| Nickel (Ni) | µg/L | 1,000 | 7^ |
| Strontium (Sr) | µg/L | - | - |
| Tin (Sn) | µg/L | 500 | - |
| Vanadium (V) | µg/L | - | 100 |
| Zinc (Zn) | µg/L | 5,000 | 15 |
| Ammonia | mg/L | - | 0.91 |
| Nitrate | mg/L | 45.0 | 0.7 |

**Note:** Water quality criteria/guideline values for metals/metalloids are for dissolved metals/metalloids

[1] PNG ER criteria are those relevant to marine waters

[2] ANZECC/ARMCANZ (2000) values based on a 95% level of species protection for metals/metalloids in marine waters in typical slightly–moderately disturbed systems, and slightly disturbed lowland river or marine environment in tropical Australia for other parameters except: ^ cadmium, mercury and nickel values are for protection of 99% of species in typical slightly–moderately disturbed systems as per ANZECC/ARMCANZ (2000) (which recommends the use of 99% species protection guideline values for these metals/metalloids due to the risk from bioaccumulation and secondary poisoning (Hg and Cd), or because the 95% level is not considered sufficiently protective (Ni)).

- indicates there is no guideline value available for these parameters

**Table 5-6 Sediment Quality Guideline Values**

| Analyte | Units | PNG MPR | SQGV | SQG-High |
|---|---|---|---|---|
| Silver (Ag) | mg/kg | 1.0 | 1.0 | 4.0 |
| Antimony (Sb) | mg/kg | 2 | 2 | 25 |
| Arsenic (As) | mg/kg | 20 | 20 | 70 |
| Cadmium (Cd) | mg/kg | 1.5 | 1.5 | 10 |
| Chromium (Cr) | mg/kg | 80 | 80 | 370 |
| Copper (Cu) | mg/kg | 65 | 65 | 270 |
| Mercury (Hg) | mg/kg | 0.15 | 0.15 | 1 |
| Nickel (Ni) | mg/kg | 21 | 21 | 52 |
| Lead (Pb) | mg/kg | 50 | 50 | 220 |
| Zinc (Zn) | mg/kg | 200 | 200 | 410 |
| TPH | mg/kg | 550 | 280 | 550 |
| PAH | µg/kg | n/a | 10,000 | 50,000 |
| Tributyltin (as Sn) | ng Sn/g | 9 | - | - |

## 5.6 Limitations

Due to the risk of UXOs at Caution Bay, sediment sampling was not possible at this location. While this limited the ability to undertake analysis of sediment, it is not considered to be a significant limitation due to the presence of existing data for this area collected for the PNG LNG Project EIS.

In addition, in-field equipment malfunctions have caused some limitation in the availability of in situ data for marine water quality. These were:

- Loss of water quality profiling data for two sites (M17 and M19) in Caution Bay during the June-July 2016 surveys. While data was collected at these sites during the January 2017 survey, the loss of the earlier data means that seasonality has not been captured for these two sites during the survey. However, the availability of profiling data from other sites in Caution Bay and equivalent data (albeit surface only) from the PNG LNG Project EIS means sufficient baseline data is available to characterize existing conditions and that the absence of seasonal data for these two sites is not considered to be a significant limitation.
- Capping of continuous turbidity measurements at Site A during the June-July 2016 survey at 110 NTU. Due to the turbid nature of the water at this location, there were a number of turbidity readings for this site that exceeded the cap. However, the instrument deployed at Site B provided measurements over a higher turbidity range (i.e., was not limited to 110 NTU) and provides a dataset that can be extrapolated to cover the Site A readings where relevant.

These limitations are not anticipated to impact on the ability to characterize the baseline marine water and sediment quality environment suitable for preparation of an EIS/ESHIA.

# 6 Baseline Characterization

This section provides an overview of the marine water and sediment quality baseline for the study area within the context of national and international water and sediment quality criteria and guidelines. It includes discussion on physicochemical parameters, general water quality, nutrients and toxicants in water and sediment, based on historical field studies and the June-July 2016 and January 2017 surveys. Raw data is provided in the appendices to this report.

## 6.1 Overview

Water and sediment quality are important environmental assets in the study area and surrounds due to the presence of a number of ecological receptors that are sensitive to altered water and sediment quality conditions. These sensitive receptors, discussed further in the Marine Biodiversity Baseline Report (BMT WBM, 2017c) include seagrass meadows and coral reef habitats in Caution Bay, along with a number of important marine species.

### 6.1.1 Orokolo Bay and Offshore of Purari River Delta

Orokolo Bay and the Purari River delta are subject to two distinctive seasons experiencing north to northwest monsoon winds from December to March (wet season) and southeast trade winds from May to October (dry season), with April and November acting as changeover periods (Evesson, 1983).

Water depth varies in Orokolo Bay and the Purari River delta, with depths of 5 to 10 m in nearshore areas and up to 30 m in areas further offshore. Bed sediment composition in these areas is mostly comprised of silts and clays, with areas near the Purari River mouth comprised of higher proportions of sandy substrate.

The Purari River mouth is approximately 10 km to the west of the centerline of the proposed offshore pipeline corridor.

Resuspension of sediments in the Gulf of Papua, leading to increased water turbidity, is driven primarily by wind-driven waves (Saint-cast and Condie, 2006). In the wet season, winds tend to be calmer. Wind strength gradually increases throughout the year to a peak with the dry season trade winds in July, and then progressively decreases with the return of the wet season. Dry season trade winds are generally strong from the southeast and cover a significant fetch across the Coral Sea. Therefore, turbidity generated from wind and wave driven resuspension is likely to be highest during the dry season, while turbidity generated by fluvial delivery of terrigenous sediment is highest during the wet season.

### 6.1.2 Offshore Export Pipeline Corridor

The offshore export pipeline corridor within the Gulf of Papua traverses the edge of the continental shelf. The seafloor sediment composition in the deepest waters along the corridor (up to 90 m) varies from soft clays to well-layered interbedded sand, silt and clay layers (CNS, 2008a).

As the pipeline corridor rises again (depths of 35 to 60 m) up to the edge of Caution Bay the substrate changes to a slightly silty clay (CNS 2008a). This area also includes some rocky outcrops.

### 6.1.3 Caution Bay

Caution Bay is subject to the same distinct seasonality as Orokolo Bay, with a period dominated by northwest monsoons from December to March, and by southeast trade winds from May to November (GEMS, 2008). Suspended sediment levels are typically higher during the wet season than the dry season, most likely due to higher runoff during the wet season.

The seafloor at Caution Bay is primarily characterized by terrigenous silt and clay sediments (CNS, 2008b). This ranges from muddy sediment in deeper waters (30 to 50 m deep) through to coarser coral sands and coral rubble in shallow areas (<30 m deep) (CNS, 2008b). Within the nearshore and intertidal area, the benthic environment is predominantly mud flats, particularly in the vicinity of the Vaihua River estuary.

## 6.2 Water Quality Conditions

### 6.2.1 In Situ Physicochemical Data

The physicochemical data was collected at each site by water quality profiling, involving in situ measurements taken throughout the water column. Results from the dry season and wet season surveys are summarized in Table 6-1 to Table 6-3. Data are provided for surface, middle and bottom water layers at each site. Values exceeding any of the water quality guideline values are highlighted.

The water quality profiling data are also presented as graphs for key parameters in Figure 6-1 to Figure 6-9.

#### *6.2.1.1 Temperature*

Water temperature was fairly consistent at all sites, with temperatures ranging between 26˚C and 31˚C at all sites during wet and dry season surveys (Figure 6-1, Figure 6-4 and Figure 6-7). Slightly warmer temperatures (1 to 2°C higher) were recorded during the wet season survey, and slightly warmer temperature was recorded in surface waters at most sites. Sites in Orokolo Bay had higher water temperature (where temperatures ranged from 28 to 30˚C) compared to Caution Bay sites and offshore export pipeline corridor sites (26 to 30˚C).

The water quality profiling data from sites at Orokolo Bay showed that surface waters (i.e. top 10 to 15 m of water) were warmer than lower layers (Figure 6-3). This indicates the presence of stratified water layers (stratification), mostly likely due to overlying freshwater from Purari River discharges (discussed below). The less dense fresher waters in the upper layers are prevented from mixing with denser more saline waters in lower layers, allowing the upper surface layers to warm up more than lower layers.

#### *6.2.1.2 Electrical Conductivity and Salinity*

During the dry season survey, electrical conductivity (EC) and salinity measurements were similar between sites at Caution Bay and the offshore export pipeline corridor (Figure 6-1, Figure 6-4 and Figure 6-7). Electrical conductivity was approximately 53,000 to 55,000 µS/cm at these sites, while salinity was approximately 36 parts per thousand (ppt). Furthermore, EC and salinity remained fairly consistent through the water column at Caution Bay and offshore export pipeline corridor sites, indicating that stratification was not evident at the time of sampling (dry season) in these areas. In contrast, sites in Orokolo Bay had less saline water in surface layers (~35,000 µS/cm), with EC increasing with depth to approximately 55,000 µS/cm in bottom water (Figure 6-1). As discussed in

Section 6.2.1.1, this indicates that stratification was evident at Orokolo Bay sites at the time of sampling during the dry season survey, which was likely due to freshwater discharges from the Purari River and the calm conditions at the time of sampling. These calm conditions are reflected in the dry season profiling data for all three areas, which generally shows more consistent water quality conditions between sites during the dry season survey relative to the wet season survey, when greater variability was evident in the data.

During the wet season survey, EC and salinity was higher in surface waters in Orokolo Bay compared to the dry season survey, and was more consistent through the water column, indicating less stratification compared to the dry season survey. The site at the Purari River mouth (Site M45) had relatively fresh surface waters (~2,000 µS/cm) and saline bottom waters (~40,000 µS/cm). Electrical conductivity and salinity at sites along the offshore export pipeline corridor and Caution Bay were lower in surface waters during the wet season survey compared to the dry season survey. This indicates that in the wet season, riverine plumes had not fully mixed with marine water in surface water layers (top 10 to 20 m) in these offshore marine areas.

The EC data indicates that freshwater discharges from the Purari River and other nearby riverine systems has a noticeable influence on water quality within the Gulf of Papua, especially in nearshore coastal areas such as Orokolo Bay. With rainfall in the Papua New Guinea highlands of 10 to 13 m annually, the combined freshwater discharge is substantial, being about 15,000 $m^3/s$ (Martins and Wolanski (2015). Martins and Wolanski (2015) reported that this freshwater discharge produces a brackish water plume that covers most of the gulf, extending no more than 20 m in depth, progressively thinning out with increasing distance from the coast. In June 1991, Wolanski *et al.* (1994) observed that the brackish water plume was confined to coastal waters, suggesting a highly dynamic nature of the plume.

#### *6.2.1.3 pH*

The pH of waters was within the ANZECC guideline range for marine water of pH 8.0 to 8.4 at most sites (Figure 6-2, Figure 6-5 and Figure 6-8). The exceptions were two sites in Orokolo Bay (M1 and M7) during the dry season survey and seven sites during the wet season, which had pH values slightly below pH 8.0 in deeper water layers. Eleven sites along the offshore export pipeline corridor had pH values slightly below pH 8.0 in surface waters during the dry season survey, while most sites ins this area had pH values below pH 8.0 during the wet season survey (Figure 6-5). The four sites at the eastern end of the pipeline corridor near Caution Bay (M41, M42, M43 and M44) had higher pH values relative to the other sites, with pH values between pH 8.0 and 8.2 throughout the water column. These four sites also had higher EC and salinity compared to other offshore pipeline sites (Figure 6-5), which may be reflective of increasing distance from the major river inflows, hence greater influence of marine waters.

#### *6.2.1.4 Turbidity*

Turbidity was below 15 NTU at all sites during the dry season survey, with turbidity typically higher in bottom waters at most sites at Orokolo Bay and Caution Bay (Figure 6-2 and Figure 6-8). During the dry season survey, turbidity was lowest at Caution Bay sites (0.1 to 2 NTU), slightly higher at offshore pipeline sites (0 to 8 NTU) and highest at Orokolo Bay sites (0.2 to 15 NTU). Compared to dry season turbidity, during the wet season survey turbidity was similar at offshore export pipeline corridor sites, slightly higher at Caution Bay sites and slightly lower at Orokolo Bay sites.

As shown in Figure 6-2, Site M45 (mouth of the Purari River) during the wet season had much higher turbidity (~100 NTU) than other sites in Orokolo Bay (up to 15 NTU). The water quality in general at this site was different to other Orokolo Bay sites, with noticeably different temperature, conductivity, and pH values (Figure 6-1 to Figure 6-3). This difference in water quality is due to the location of the site at the mouth of the Purari River, which discharges significant volumes of sediment laden freshwater.

#### *6.2.1.5 Dissolved Oxygen*

Dissolved oxygen (DO) was above the ANZECC guideline value for marine water of greater than 90% saturation at all sites in Caution Bay during the dry season and wet season surveys, and all surface waters at sites along the offshore export pipeline corridor. Dissolved oxygen decreased with depth at offshore export pipeline corridor sites during the dry season and wet season surveys, with DO levels dropping below 90% saturation in water depths below about 20 m at most sites. However, DO was not recorded below 80% saturation at the offshore export pipeline corridor sites, even at depths of >50 m (Figure 6-6).

During the dry season survey, DO levels in surface waters at all Orokolo Bay sites were above 100% saturation[2]. However, DO levels decreased with depth at all sites, decreasing below the ANZECC guideline value of 90% saturation around a water depth of 5 to 10 m. Dissolved oxygen levels in bottom waters at Orokolo Bay sites were approximately 70 to 80% (Figure 6-3), indicating there was some stratification present during the dry season survey. In contrast, during the wet season survey Dissolved oxygen levels generally remained steady or slightly increased with depth, indicating less stratification and better mixing of the water column.

Dissolved oxygen concentrations were above the PNG ER guideline value of 5 mg/L at all sites in Caution Bay and the offshore export pipeline corridor during the dry season and wet season surveys. Dissolved oxygen concentrations were below the PNG ER guideline value in bottom waters at nine sites in Orokolo Bay during the dry season survey and three sites during the wet season survey.

[2] Dissolved oxygen levels greater than 100% air saturation can occur in environmental water because of the production of oxygen by photosynthetically-active organisms and/or incomplete equilibration of dissolved oxygen between water and the air above it, with a 'healthy' range for aquatic organisms typically being between 80 to 120% saturation.

**Table 6-1 Orokolo Bay – In situ Physicochemical Data**

| Site name | Depth Profile | Water Depth (m) | Temp | | EC | | Salinity | | pH | | Turbidity | | Dissolved Oxygen | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | °C | | µS/cm | | ppt | | - | | NTU | | % sat | | mg/L | |
| | | | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet |
| M1 | Surface | 0.3 | 29.6 | 29.1 | 34,137 | 44,351 | 21.3 | 28.5 | 8.16 | 8.11 | 13.7 | 0.9 | 114.3 | 101.3 | 7.7 | 6.6 |
| | Middle | 3.0 | 28.9 | 29.8 | 36,238 | 46,171 | 22.8 | 29.8 | 8.08 | 7.99 | 5.6 | 2.0 | 103.1 | 104.1 | 7.0 | 6.7 |
| | Bottom | 6.3 | 28.4 | 29.6 | 50,155 | 48,404 | 32.8 | 31.4 | 7.93 | 7.88 | 12.6 | 3.4 | 53.8 | 89.6 | 3.5 | 5.7 |
| M2 | Surface | 0.3 | 29.6 | 29.9 | 33,803 | 44,467 | 21.1 | 28.6 | 8.17 | 8.12 | 0.8 | 0.8 | 112.2 | 97.1 | 7.6 | 6.3 |
| | Middle | 7.9 | 28.3 | 29.6 | 49,871 | 49,244 | 32.6 | 32.1 | 8.07 | 7.99 | 0.8 | - | 96.9 | 100.7 | 6.3 | 6.4 |
| | Bottom | 16.6 | 28.4 | 29.2 | 53,774 | 50,769 | 35.4 | 33.2 | 8.03 | 7.95 | 6.0 | 0.4 | 76.8 | 87.9 | 4.9 | 5.6 |
| M3 | Surface | 0.3 | 29.3 | 28.8 | 31,988 | 38,530 | 19.8 | 24.4 | 8.25 | 8.11 | 0.2 | 1.5 | 109.3 | 95.2 | 7.5 | 6.4 |
| | Middle | 13.1 | 28.4 | 29.3 | 54,267 | 59,260 | 35.8 | 39.5 | 8.04 | 8.11 | 1.8 | 0.3 | 74.8 | 98.5 | 4.8 | 6.1 |
| | Bottom | 27.4 | 28.4 | 29.1 | 55,095 | 60,810 | 36.4 | 40.7 | 8.09 | 8.08 | 1.1 | 0.3 | 81.9 | 96.6 | 5.2 | 5.9 |
| M4 | Surface | 0.3 | 29.8 | 29.6 | 34,838 | 39,783 | 21.8 | 25.3 | 8.21 | 8.09 | 0.2 | - | 105.2 | 74.6 | 7.1 | 4.9 |
| | Middle | 13.0 | 28.4 | 29.3 | 53,708 | 57,657 | 35.4 | 38.3 | 8.07 | 8.13 | 0.7 | 0.6 | 83.8 | 90.9 | 5.4 | 5.6 |
| | Bottom | 27.5 | 28.5 | 28.9 | 54,517 | 60,081 | 36.0 | 40.2 | 8.04 | 8.04 | 3.1 | 1.0 | 73.2 | 86.4 | 4.7 | 5.3 |
| M5 | Surface | 0.3 | 29.5 | 29.7 | 34,740 | 41,874 | 21.7 | 26.7 | 8.18 | 8.00 | 0.4 | 0.7 | 108.6 | 100.7 | 7.4 | 6.6 |
| | Middle | 4.0 | 29.0 | 29.7 | 35,894 | 46,827 | 22.6 | 30.3 | 8.16 | 8.01 | 1.2 | 2.1 | 108.4 | 103.9 | 7.4 | 6.7 |
| | Bottom | 8.9 | 28.3 | 29.6 | 50,532 | 49,683 | 33.0 | 32.4 | 8.02 | 7.89 | 4.5 | 1.4 | 81.5 | 76.9 | 5.3 | 4.9 |
| M6 | Surface | 0.3 | 28.7 | 29.2 | 33,303 | 49,060 | 20.8 | 31.9 | 8.11 | 8.11 | 0.4 | 1.2 | 106.9 | 94.6 | 7.4 | 6.1 |
| | Middle | 6.0 | 28.3 | 29.2 | 51,540 | 58,690 | 33.8 | 39.1 | 8.06 | 8.13 | 0.4 | - | 87.9 | 96.0 | 5.7 | 5.9 |
| | Bottom | 12.3 | 28.4 | 29.2 | 54,489 | 59,300 | 36.0 | 39.5 | 8.03 | 8.13 | 10.5 | 0.8 | 71.7 | 95.5 | 4.6 | 5.9 |
| M7 | Surface | 0.3 | 29.6 | 30.5 | 34,262 | 45,292 | 21.4 | 29.2 | 8.14 | 8.11 | 3.2 | 4.5 | 112.2 | 96.9 | 7.6 | 6.2 |
| | Middle | 4.0 | 28.5 | 29.7 | 47,838 | 48,152 | 31.1 | 31.3 | 7.96 | 8.04 | 5.1 | 1.0 | 82.6 | 103.6 | 5.4 | 6.6 |
| | Bottom | 7.5 | 28.3 | 29.6 | 50,042 | 49,024 | 32.7 | 31.9 | 7.99 | 7.96 | 6.8 | 1.9 | 70.9 | 96.7 | 4.6 | 6.2 |
| M8 | Surface | 0.3 | 29.0 | 29.4 | 34,470 | 39,426 | 21.6 | 25.0 | 8.14 | 8.06 | 0.6 | 1.0 | 104.4 | 102.1 | 7.1 | 6.8 |
| | Middle | 5.2 | 28.6 | 29.6 | 48,372 | 48,158 | 31.5 | 31.3 | 8.02 | 8.00 | 1.8 | 1.1 | 97.6 | 101.8 | 6.4 | 6.5 |
| | Bottom | 10.9 | 28.3 | 29.5 | 50,407 | 49,803 | 33.0 | 32.5 | 8.00 | 7.91 | 8.3 | 1.1 | 77.2 | 82.8 | 5.0 | 5.3 |

| Site name | Depth Profile | Water Depth (m) | Temp | | EC | | Salinity | | pH | | Turbidity | | Dissolved Oxygen | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ºC | | µS/cm | | ppt | | - | | NTU | | % sat | | mg/L | |
| | | | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet |
| M9 | Surface | 0.3 | 29.9 | 29.2 | 26,746 | 45,466 | 16.3 | 29.3 | 8.24 | 8.01 | 2.4 | 1.1 | 100.7 | 87.2 | 7.0 | 5.7 |
| | Middle | 13.1 | 28.4 | 29.2 | 53,771 | 58,457 | 35.4 | 38.9 | 8.08 | 8.10 | 0.7 | 0.2 | 83.6 | 94.9 | 5.3 | 5.9 |
| | Bottom | 26.4 | 28.5 | 29.2 | 54,747 | 59,874 | 36.2 | 40.0 | 8.09 | 8.09 | 0.9 | 0.2 | 81.4 | 95.4 | 5.2 | 5.9 |
| M10 | Surface | 0.3 | 30.2 | 29.0 | 32,111 | 38,960 | 19.9 | 24.7 | 8.22 | 8.11 | 0.5 | 1.0 | 106.2 | 85.9 | 7.2 | 5.8 |
| | Middle | 10.0 | 28.3 | 29.4 | 52,308 | 57,390 | 34.4 | 38.1 | 8.09 | 8.13 | 1.6 | - | 85.7 | 95.6 | 5.5 | 5.9 |
| | Bottom | 21.1 | 28.5 | 29.2 | 54,631 | 58,190 | 36.1 | 38.7 | 8.00 | 8.10 | 11.3 | 0.4 | 61.3 | 94.0 | 3.9 | 5.8 |
| M11 | Surface | 0.3 | 30.0 | 30.1 | 33,153 | 41,503 | 20.6 | 26.5 | 8.17 | 8.07 | 2.5 | 0.7 | 113.2 | 100.1 | 7.6 | 6.5 |
| | Middle | 13.2 | 28.4 | 29.3 | 53,705 | 50,411 | 35.4 | 32.9 | 8.06 | 8.01 | 0.7 | 0.3 | 83.5 | 99.3 | 5.3 | 6.3 |
| | Bottom | 26.7 | 28.5 | 27.9 | 54,354 | 53,641 | 35.9 | 35.4 | 8.04 | 7.89 | 6.1 | 0.3 | 74.5 | 80.6 | 4.7 | 5.2 |
| M12 | Surface | 0.3 | 29.9 | 29.6 | 34,452 | 43,180 | 21.5 | 27.7 | 8.20 | 8.04 | 1.0 | 1.5 | 111.4 | 72.8 | 7.5 | 4.8 |
| | Middle | 12.1 | 28.4 | 29.4 | 52,993 | 57,340 | 34.9 | 38.1 | 8.04 | 8.11 | 1.6 | 1.1 | 79.4 | 92.7 | 5.1 | 5.7 |
| | Bottom | 24.8 | 28.5 | 29.0 | 54,244 | 59,350 | 35.8 | 39.6 | 8.04 | 8.03 | 5.3 | 0.5 | 75.6 | 88.3 | 4.8 | 5.4 |
| M45 | Surface | 0.3 | - | 25.5 | - | 2,327 | - | 1.2 | - | 7.89 | - | 143.1 | - | 95.1 | - | 7.7 |
| | Middle | 3.7 | - | 25.9 | - | 12,860 | - | 7.4 | - | 7.82 | - | 124.8 | - | 92.0 | - | 7.2 |
| | Bottom | 7.2 | - | 28.8 | - | 40,418 | - | 25.7 | - | 7.85 | - | 78.7 | - | 92.7 | - | 6.2 |
| M46 | Surface | 0.3 | - | 31.1 | - | 36,246 | - | 22.7 | - | 8.11 | - | 1.8 | - | 96.9 | - | 6.3 |
| | Middle | 3.3 | - | 29.7 | - | 47,656 | - | 30.9 | - | 8.03 | - | 1.5 | - | 102.0 | - | 6.5 |
| | Bottom | 6.8 | - | 29.7 | - | 48,115 | - | 31.2 | - | 8.00 | - | 8.0 | - | 97.8 | - | 6.3 |
| ***Guideline values (marine water)*** | ***PNG ER*** | | - | | - | | - | | - | | - | | - | | *>5* | |
| | ***ANZECC*** | | - | | - | | - | | *8.0-8.4* | | - | | *>90* | | - | |

Note: Yellow highlighted cells indicate exceedance of the ANZECC guideline values, while orange highlighted cells indicate exceedance of the PNG ER guideline values

**Table 6-2 Offshore Export Pipeline Corridor – In situ Physicochemical Data**

| Site name | Depth Profile | Water Depth (m) | Temp | | EC | | Salinity | | pH | | Turbidity | | Dissolved Oxygen | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ºC | | µS/cm | | ppt | | - | | NTU | | % sat | | mg/L | |
| | | | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet |
| M25 | Surface | 0.3 | 28.3 | 30.2 | 52,651 | 40,652 | 34.6 | 25.85 | 8.04 | 7.99 | 3.1 | 0.2 | 99.7 | 104.9 | 6.4 | 6.9 |
| | Middle | 11.9 | 27.9 | 29.6 | 53,094 | 50,759 | 34.9 | 33.17 | 8.18 | 7.96 | 0.5 | 0.4 | 97.9 | 100.8 | 6.3 | 6.4 |
| | Bottom | 24.6 | 27.9 | 27.9 | 53,410 | 54,259 | 35.2 | 35.81 | 8.18 | 7.90 | 0.9 | 2.4 | 92.2 | 90.8 | 6.0 | 5.8 |
| M26 | Surface | 0.3 | 27.9 | 29.7 | 54,944 | 39,719 | 36.3 | 25.21 | 7.93 | 7.96 | 0.0 | 8.2 | 101.1 | 100.5 | 6.5 | 6.6 |
| | Middle | 22.9 | 27.9 | 29.6 | 54,708 | 50,936 | 36.1 | 33.29 | 8.12 | 7.95 | 0.5 | 7.5 | 95.9 | 99.9 | 6.2 | 6.3 |
| | Bottom | 46.2 | 27.6 | 27.1 | 55,364 | 54,541 | 36.6 | 36.04 | 8.11 | 7.87 | 0.4 | 5.7 | 83.2 | 85.1 | 5.4 | 5.5 |
| M27 | Surface | 0.3 | 27.9 | 29.6 | 54,440 | 41,629 | 36.0 | 26.56 | 7.77 | 7.98 | 3.4 | 2.1 | 99.1 | 100.6 | 6.4 | 6.6 |
| | Middle | 19.5 | 28.0 | 29.6 | 54,520 | 51,040 | 36.0 | 33.37 | 8.05 | 7.94 | 0.2 | 0.4 | 92.8 | 100.4 | 6.0 | 6.4 |
| | Bottom | 41.9 | 27.5 | 27.4 | 55,150 | 54,471 | 36.5 | 35.98 | 8.07 | 7.90 | 1.1 | 0.4 | 83.2 | 84.0 | 5.4 | 5.4 |
| M28 | Surface | 0.3 | 28.0 | 29.7 | 54,114 | 43,128 | 35.7 | 27.63 | 7.90 | 7.94 | 2.5 | 2.5 | 99.4 | 101.1 | 6.4 | 6.6 |
| | Middle | 23.7 | 27.7 | 29.6 | 54,500 | 51,301 | 36.0 | 33.57 | 8.09 | 7.86 | 0.6 | 1.9 | 97.7 | 100.9 | 6.3 | 6.4 |
| | Bottom | 48.9 | 27.3 | 28.7 | 55,138 | 53,374 | 36.5 | 35.1 | 8.06 | 7.91 | 1.0 | 1.9 | 81.4 | 96.5 | 5.3 | 6.1 |
| M29 | Surface | 0.3 | 28.0 | 29.8 | 54,361 | 40,997 | 35.9 | 26.1 | 7.94 | 7.95 | 0.0 | 1.4 | 98.8 | 101.6 | 6.3 | 6.7 |
| | Middle | 24.6 | 27.4 | 29.3 | 54,998 | 52,973 | 36.4 | 34.8 | 8.06 | 7.92 | 0.6 | 3.4 | 90.4 | 100.7 | 5.8 | 6.4 |
| | Bottom | 49.2 | 27.3 | 27.2 | 55,104 | 54,477 | 36.5 | 36.0 | 8.06 | 7.90 | 1.2 | 0.4 | 84.0 | 88.9 | 5.4 | 5.8 |
| M30 | Surface | 0.3 | 27.9 | 30.0 | 54,170 | 38,899 | 35.7 | 24.6 | 7.91 | 7.99 | 2.4 | 0.8 | 98.9 | 103.3 | 6.4 | 6.8 |
| | Middle | 25.1 | 27.3 | 29.6 | 54,957 | 51,750 | 36.4 | 33.9 | 8.06 | 7.93 | 0.3 | 1.8 | 88.0 | 101.7 | 5.7 | 6.4 |
| | Bottom | 52.6 | 27.3 | 27.0 | 54,992 | 54,629 | 36.4 | 36.1 | 8.06 | 7.87 | 1.4 | 0.2 | 83.2 | 88.1 | 5.4 | 5.7 |
| M31 | Surface | 0.3 | 27.9 | 30.0 | 54,375 | 40,897 | 35.9 | 26.0 | 7.97 | 7.94 | 0.3 | 1.6 | 98.9 | 103.3 | 6.4 | 6.8 |
| | Middle | 26.0 | 27.3 | 29.4 | 54,906 | 53,155 | 36.3 | 34.9 | 8.06 | 7.95 | 0.1 | 1.7 | 89.0 | 100.7 | 5.8 | 6.3 |
| | Bottom | 53.8 | 27.2 | 27.1 | 54,861 | 54,643 | 36.3 | 36.1 | 8.08 | 7.88 | 0.9 | 0.5 | 86.3 | 92.2 | 5.6 | 6.0 |
| M32 | Surface | 0.3 | 28.2 | 30.2 | 54,729 | 38,694 | 36.2 | 24.5 | 7.68 | 7.98 | 7.2 | 0.4 | 98.3 | 103.3 | 6.3 | 6.8 |
| | Middle | 30.0 | 27.5 | 29.3 | 55,269 | 53,425 | 36.6 | 35.1 | 8.06 | 7.93 | 0.4 | 1.7 | 92.9 | 99.5 | 6.0 | 6.3 |
| | Bottom | 60.4 | 27.2 | 26.7 | 55,345 | 54,705 | 36.6 | 36.2 | 8.08 | 7.86 | 1.2 | 0.4 | 87.1 | 90.0 | 5.6 | 5.9 |

| Site name | Depth Profile | Water Depth (m) | Temp | | EC | | Salinity | | pH | | Turbidity | | Dissolved Oxygen | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ºC | | µS/cm | | ppt | | - | | NTU | | % sat | | mg/L | |
| | | | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet |
| M33 | Surface | 0.3 | 28.2 | 30.7 | 54,554 | 37,193 | 36.0 | 23.4 | 7.92 | 7.95 | 0.4 | 1.1 | 97.5 | 104.9 | 6.2 | 6.9 |
| | Middle | 30.3 | 27.5 | 29.5 | 54,992 | 53,157 | 36.4 | 34.9 | 8.08 | 7.93 | 0.1 | 0.9 | 96.2 | 101.6 | 6.2 | 6.4 |
| | Bottom | 59.0 | 27.1 | 26.6 | 55,219 | 54,673 | 36.6 | 36.2 | 8.08 | 7.86 | 1.0 | 0.6 | 87.8 | 90.2 | 5.7 | 5.9 |
| M34 | Surface | 0.3 | 27.5 | 30.0 | 55,260 | 43,363 | 36.6 | 27.8 | 7.74 | 7.92 | 1.9 | 1.4 | 97.6 | 102.5 | 6.3 | 6.7 |
| | Middle | 30.7 | 27.3 | 29.2 | 55,129 | 53,381 | 36.5 | 35.1 | 8.08 | 7.95 | 0.4 | 0.8 | 94.7 | 99.4 | 6.1 | 6.3 |
| | Bottom | 63.7 | 27.0 | 26.2 | 55,265 | 54,703 | 36.6 | 36.2 | 8.08 | 7.85 | 1.7 | 0.8 | 87.1 | 86.3 | 5.7 | 5.7 |
| M35 | Surface | 0.3 | 27.9 | 30.0 | 54,802 | 42,621 | 36.2 | 27.3 | 8.00 | 7.94 | 1.0 | 2.2 | 97.6 | 102.3 | 6.3 | 6.7 |
| | Middle | 31.0 | 27.2 | 29.4 | 55,009 | 52,990 | 36.4 | 34.8 | 8.09 | 7.96 | 0.5 | 2.2 | 92.8 | 99.6 | 6.0 | 6.3 |
| | Bottom | 63.1 | 27.0 | 26.2 | 55,112 | 54,661 | 36.5 | 36.2 | 8.09 | 7.89 | 0.4 | 1.1 | 88.2 | 89.1 | 5.7 | 5.9 |
| M36 | Surface | 0.3 | 27.9 | 30.2 | 54,721 | 43,468 | 36.2 | 27.9 | 8.00 | 7.96 | 4.5 | 2.1 | 97.8 | 103.7 | 6.3 | 6.7 |
| | Middle | 26.2 | 27.0 | 29.6 | 55,037 | 52,673 | 36.4 | 34.6 | 8.09 | 7.92 | 0.7 | 1.9 | 94.2 | 99.7 | 6.1 | 6.3 |
| | Bottom | 52.7 | 26.9 | 26.6 | 55,036 | 54,714 | 36.4 | 36.2 | 8.09 | 7.91 | 0.2 | 2.5 | 89.4 | 93.0 | 5.8 | 6.1 |
| M37 | Surface | 0.3 | 27.8 | 30.3 | 54,845 | 44,888 | 36.3 | 28.9 | 7.95 | 7.96 | 1.8 | 5.3 | 97.8 | 103.0 | 6.3 | 6.6 |
| | Middle | 23.0 | 27.3 | 29.7 | 54,871 | 52,467 | 36.3 | 34.4 | 8.10 | 7.94 | 0.7 | 3.7 | 96.0 | 100.3 | 6.2 | 6.3 |
| | Bottom | 45.1 | 26.9 | 27.6 | 55,024 | 54,281 | 36.4 | 35.8 | 8.10 | 7.92 | 0.1 | 6.4 | 90.2 | 91.4 | 5.9 | 5.9 |
| M38 | Surface | 0.3 | 27.1 | 30.2 | 55,652 | 43,535 | 36.9 | 27.9 | 7.82 | 7.97 | 0.4 | 5.2 | 98.2 | 103.5 | 6.4 | 6.7 |
| | Middle | 17.8 | 27.1 | 29.7 | 55,159 | 51,758 | 36.5 | 33.9 | 8.06 | 7.96 | 0.1 | 4.2 | 92.2 | 100.6 | 6.0 | 6.3 |
| | Bottom | 35.5 | 27.1 | 28.4 | 54,944 | 53,681 | 36.4 | 35.4 | 8.07 | 7.95 | 0.2 | 4.6 | 89.9 | 96.1 | 5.8 | 6.1 |
| M39 | Surface | 0.3 | 27.1 | 30.1 | 54,516 | 44,609 | 36.0 | 28.7 | 8.00 | 7.97 | 2.9 | 1.6 | 99.1 | 100.8 | 6.4 | 6.5 |
| | Middle | 16.9 | 27.3 | 29.3 | 54,458 | 52,445 | 36.0 | 34.4 | 8.09 | 7.95 | 0.4 | 1.4 | 95.4 | 92.0 | 6.2 | 5.8 |
| | Bottom | 35.0 | 27.2 | 28.3 | 54,524 | 53,638 | 36.0 | 35.3 | 8.09 | 7.93 | 1.0 | 3.6 | 91.0 | 93.6 | 5.9 | 6.0 |
| M40 | Surface | 0.3 | 27.4 | 30.0 | 54,039 | 46,186 | 35.7 | 29.8 | 8.02 | 7.93 | 0.0 | 1.5 | 97.9 | 100.9 | 6.4 | 6.5 |
| | Middle | 15.3 | 27.4 | 29.2 | 54,203 | 52,617 | 35.8 | 34.5 | 8.07 | 7.91 | 0.7 | 1.8 | 95.7 | 94.3 | 6.2 | 6.0 |
| | Bottom | 30.5 | 27.3 | 29.0 | 54,301 | 52,949 | 35.9 | 34.8 | 8.08 | 7.92 | 1.1 | 4.3 | 93.3 | 97.4 | 6.1 | 6.2 |
| M41 | Surface | 0.3 | 27.3 | 30.4 | 54,102 | 52,169 | 35.7 | 34.2 | 8.11 | 8.22 | 1.0 | 4.2 | 98.7 | 101.1 | 6.4 | 6.3 |

| Site name | Depth Profile | Water Depth (m) | Temp | | EC | | Salinity | | pH | | Turbidity | | Dissolved Oxygen | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ºC | | µS/cm | | ppt | | - | | NTU | | % sat | | mg/L | |
| | | | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet |
| | Middle | 25.7 | 27.3 | 29.4 | 54,368 | 59,228 | 35.9 | 39.5 | 8.10 | 8.16 | 0.1 | 3.7 | 92.9 | 99.8 | 6.0 | 6.1 |
| | Bottom | 52.0 | 26.6 | 27.3 | 54,601 | 61,770 | 36.1 | 41.5 | 8.09 | 8.12 | 2.2 | 3.8 | 86.8 | 91.8 | 5.7 | 5.8 |
| M42 | Surface | 0.3 | 27.0 | 30.3 | 54,349 | 50,957 | 35.9 | 33.3 | 8.03 | 8.21 | 0.3 | 0.7 | 98.8 | 102.2 | 6.4 | 6.4 |
| | Middle | 21.2 | 27.3 | 29.9 | 54,356 | 58,197 | 35.9 | 38.7 | 8.10 | 8.15 | 0.1 | 0.2 | 93.8 | 102.0 | 6.1 | 6.2 |
| | Bottom | 42.3 | 26.8 | 27.8 | 54,459 | 61,309 | 36.0 | 41.1 | 8.09 | 8.12 | 0.6 | 5.5 | 88.6 | 95.3 | 5.8 | 6.0 |
| M43 | Surface | 0.3 | 27.4 | 28.2 | 53,455 | 51,602 | 35.2 | 33.8 | 8.07 | 8.06 | 0.4 | 0.9 | 98.8 | 100.4 | 6.4 | 6.5 |
| | Middle | 20.7 | 27.4 | 29.6 | 54,504 | 58,602 | 36.0 | 39.0 | 8.11 | 8.16 | 0.1 | 0.2 | 95.5 | 100.8 | 6.2 | 6.2 |
| | Bottom | 43.8 | 26.7 | 27.2 | 54,567 | 61,776 | 36.1 | 41.5 | 8.09 | 8.13 | 1.8 | 2.8 | 88.3 | 92.8 | 5.8 | 5.8 |
| M44 | Surface | 0.3 | 26.8 | 30.3 | 54,330 | 49,445 | 35.9 | 32.2 | 8.09 | 8.22 | 1.0 | 0.6 | 98.1 | 100.0 | 6.4 | 6.3 |
| | Middle | 19.7 | 26.8 | 29.5 | 54,394 | 59,513 | 35.9 | 39.7 | 8.10 | 8.14 | 0.5 | 0.3 | 94.7 | 101.0 | 6.2 | 6.2 |
| | Bottom | 39.4 | 26.7 | 28.0 | 54,558 | 61,168 | 36.1 | 41.0 | 8.08 | 8.11 | 2.8 | 1.7 | 87.1 | 94.9 | 5.7 | 5.9 |
| ***Guideline values (marine water)*** | ***PNG ER*** | | - | | - | | - | | - | | - | | - | | *>5* | |
| | ***ANZECC*** | | - | | - | | - | | *8.0-8.4* | | - | | *>90* | | - | |

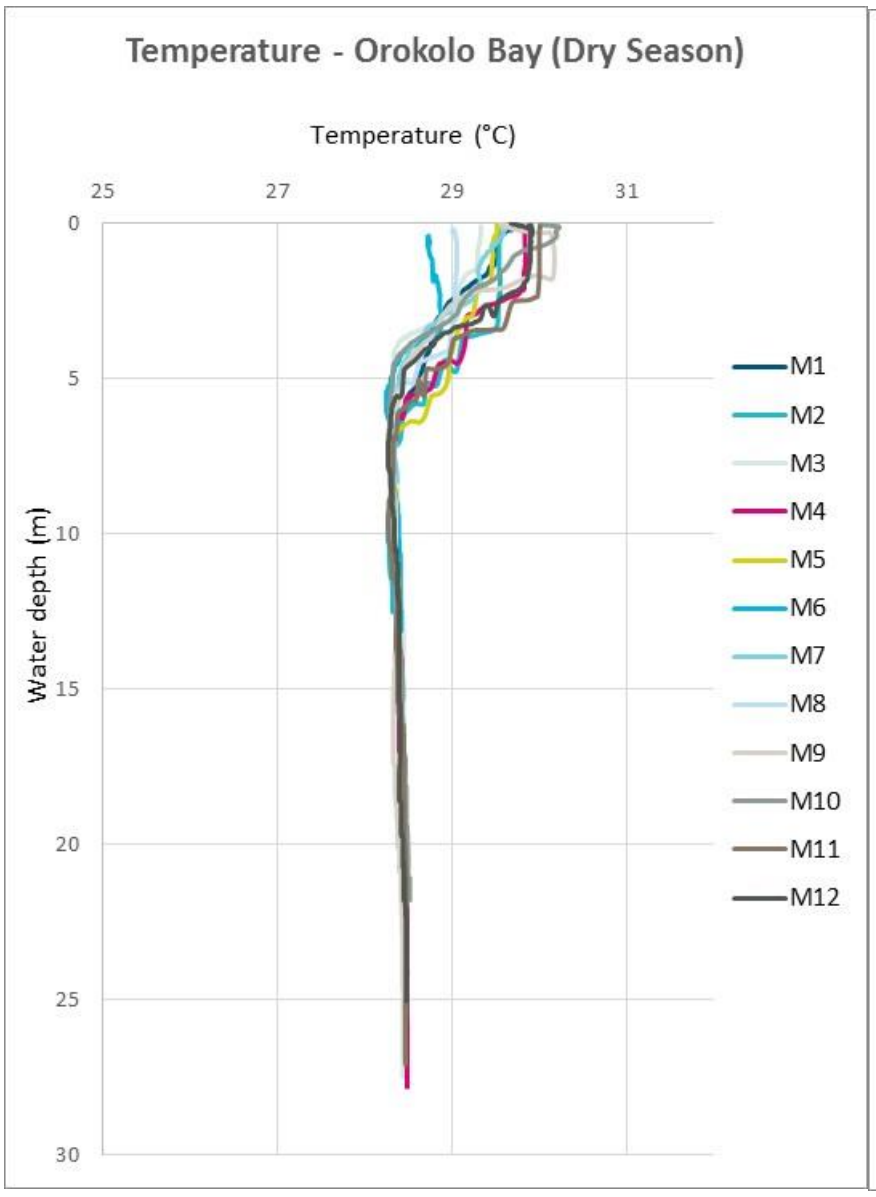
Note: Yellow highlighted cells indicate exceedance of the ANZECC guideline values, while orange highlighted cells indicate exceedance of the PNG ER guideline values

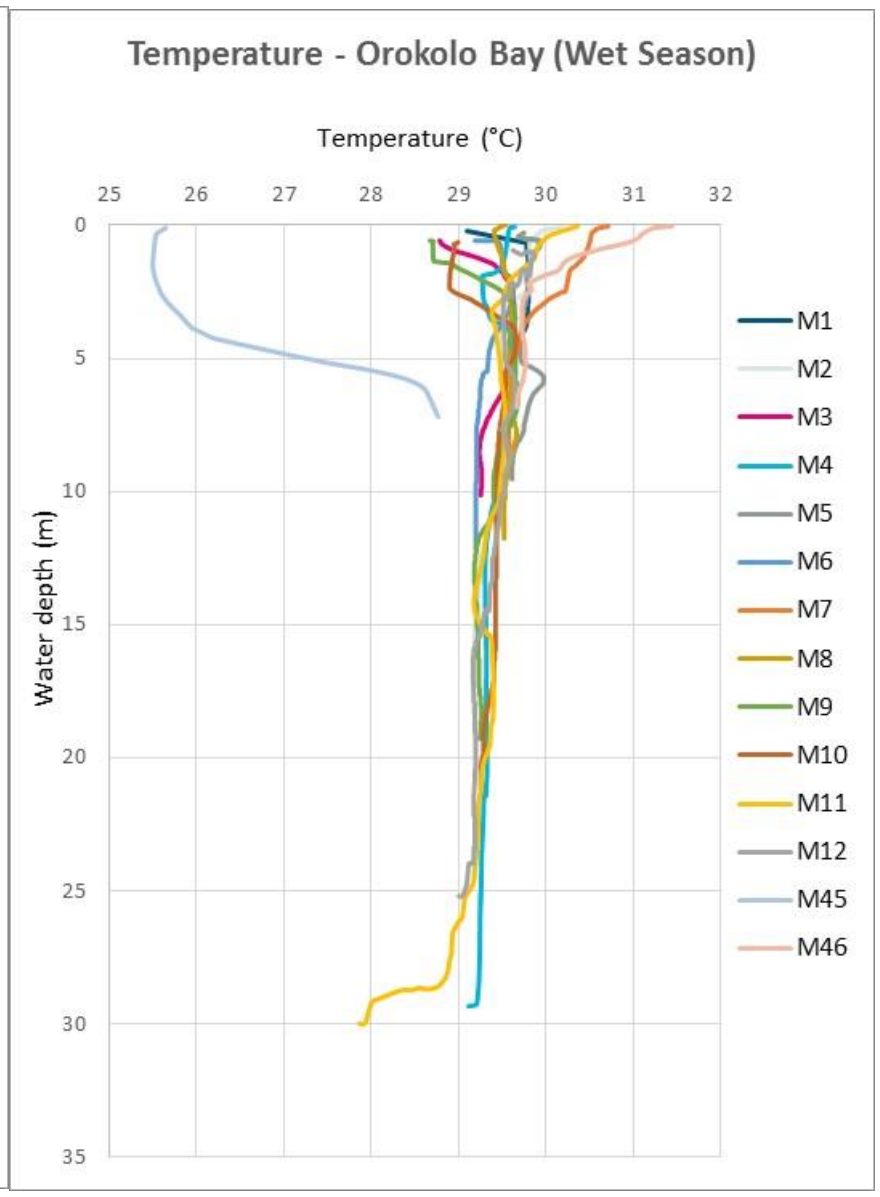
**Table 6-3 Caution Bay – In situ Physicochemical Data**

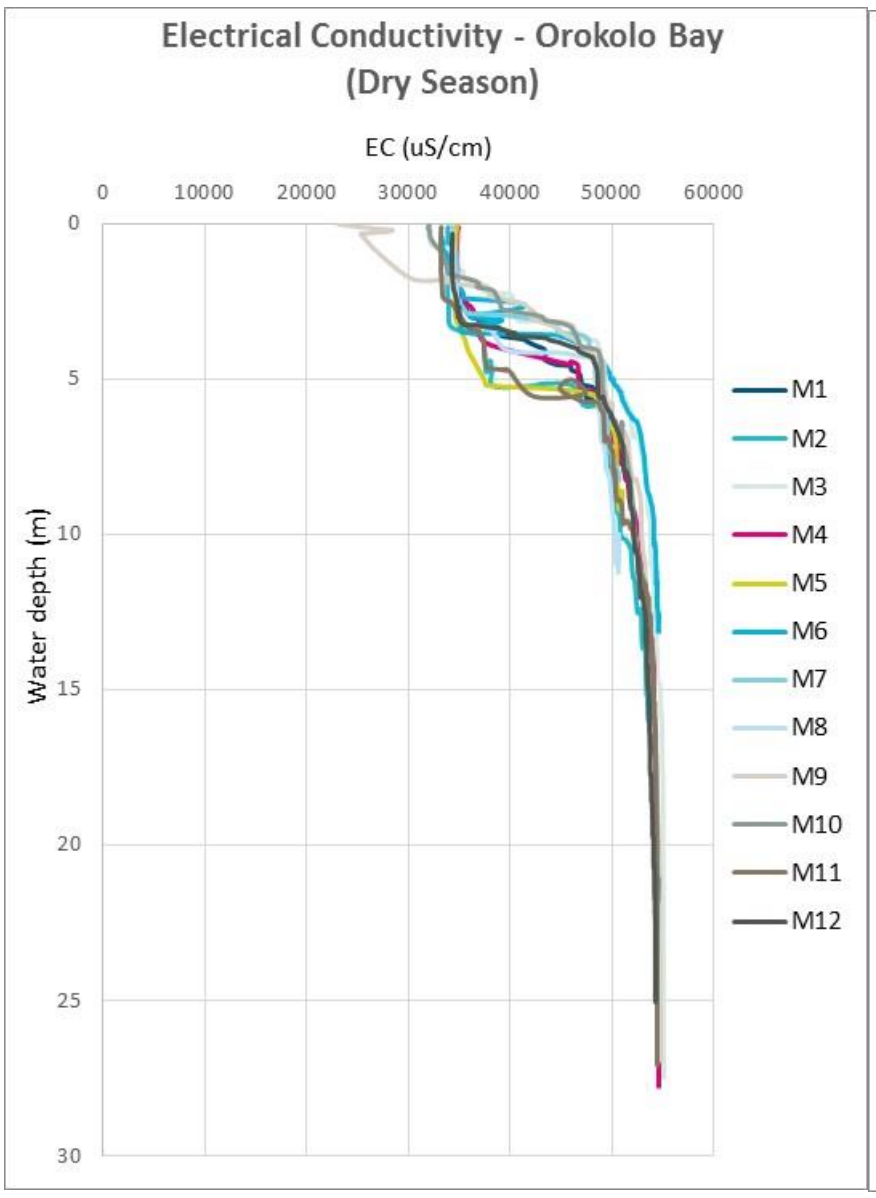
| Site name | Depth Profile | Water Depth (m) | Temp | | EC | | Salinity | | pH | | Turbidity | | Dissolved Oxygen | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ºC | | µS/cm | | ppt | | - | | NTU | | % sat | | mg/L | |
| | | | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet |
| M13 | Surface | 0.3 | 27.3 | 30.4 | 53,324 | 48,932 | 35.1 | 31.8 | 8.01 | 8.22 | 1.7 | 2.1 | 98.7 | 101.3 | 6.4 | 6.4 |
| | Middle | 11.0 | 26.9 | 28.8 | 54,295 | 59,512 | 35.9 | 39.7 | 8.09 | 8.15 | 0.6 | 0.6 | 97.5 | 91.0 | 6.4 | 5.6 |
| | Bottom | 22.8 | 26.7 | 28.1 | 54,549 | 60,894 | 36.1 | 40.8 | 8.09 | 8.11 | 1.0 | 5.1 | 92.1 | 93.1 | 6.0 | 5.8 |
| M14 | Surface | 0.3 | 27.1 | 30.5 | 54,273 | 51,218 | 35.8 | 33.5 | 8.08 | 8.22 | 0.1 | 1.1 | 98.5 | 101.7 | 6.4 | 6.3 |
| | Middle | 10.9 | 26.9 | 29.0 | 54,535 | 59,016 | 36.0 | 39.3 | 8.10 | 8.16 | 0.4 | 0.6 | 97.3 | 92.3 | 6.4 | 5.7 |
| | Bottom | 22.2 | 26.7 | 28.2 | 54,709 | 60,624 | 36.2 | 40.6 | 8.08 | 8.11 | 0.7 | 3.4 | 91.4 | 92.9 | 6.0 | 5.8 |
| M15 | Surface | 0.3 | 27.5 | 29.9 | 53,872 | 48,214 | 35.5 | 31.3 | 8.03 | 8.06 | 1.0 | 2.5 | 97.8 | 99.7 | 6.3 | 6.4 |
| | Middle | 15.2 | 26.7 | 30.2 | 54,583 | 53,314 | 36.1 | 35.0 | 8.10 | 8.15 | 0.6 | 0.8 | 96.0 | 101.9 | 6.3 | 6.3 |
| | Bottom | 30.7 | 26.5 | 28.1 | 54,719 | 60,513 | 36.2 | 40.5 | 8.08 | 8.12 | 1.9 | 6.4 | 90.1 | 94.6 | 5.9 | 5.9 |
| M16 | Surface | 0.3 | 27.2 | 29.4 | 54,211 | 48,499 | 35.8 | 31.5 | 8.05 | 7.99 | 0.4 | 1.0 | 98.4 | 98.4 | 6.4 | 6.3 |
| | Middle | 14.9 | 26.7 | 30.3 | 54,506 | 53,031 | 36.0 | 34.8 | 8.10 | 8.16 | 0.5 | 0.8 | 96.2 | 102.4 | 6.3 | 6.4 |
| | Bottom | 31.2 | 26.4 | 28.3 | 54,618 | 60,352 | 36.1 | 40.4 | 8.09 | 8.12 | 1.5 | 4.0 | 91.0 | 96.2 | 6.0 | 6.0 |
| M17 | Surface | 0.3 | - | 28.7 | - | 54,067 | - | 35.6 | - | 8.03 | - | 8.0 | - | 98.7 | - | 6.3 |
| | Middle | 14.0 | - | 30.5 | - | 52,619 | - | 34.5 | - | 8.17 | - | 2.0 | - | 103.2 | - | 6.4 |
| | Bottom | 28.7 | - | 28.3 | - | 59,767 | - | 39.9 | - | 8.10 | - | 5.6 | - | 93.4 | - | 5.8 |
| M18 | Surface | 0.3 | - | 28.4 | - | 54,138 | - | 35.7 | - | 7.95 | - | 0.8 | - | 97.3 | - | 6.2 |
| | Middle | 11.4 | - | 30.6 | - | 52,270 | - | 34.2 | - | 8.18 | - | 1.0 | - | 102.6 | - | 6.4 |
| | Bottom | 22.3 | - | 28.9 | - | 58,492 | - | 38.9 | - | 8.14 | - | 2.2 | - | 101.1 | - | 6.3 |
| M19 | Surface | 0.3 | - | 27.9 | - | 54,416 | - | 35.9 | - | 8.08 | - | 0.8 | - | 97.4 | - | 6.3 |
| | Middle | 8.2 | - | 30.7 | - | 52,222 | - | 34.2 | - | 8.18 | - | 1.7 | - | 101.4 | - | 6.3 |
| | Bottom | 19.1 | - | 29.2 | - | 57,612 | - | 38.3 | - | 8.15 | - | 1.5 | - | 102.0 | - | 6.3 |
| M20 | Surface | 0.3 | 26.8 | 30.1 | 54,951 | 52,678 | 36.4 | 34.6 | 8.05 | 8.21 | 0.1 | 0.7 | 94.2 | 98.5 | 6.2 | 6.2 |
| | Middle | 3.5 | 26.8 | 31.2 | 54,948 | 51,759 | 36.4 | 33.8 | 8.05 | 8.28 | 0.3 | 2.8 | 93.9 | 113.7 | 6.1 | 7.0 |
| | Bottom | 7.4 | 26.7 | 31.1 | 54,948 | 51,833 | 36.4 | 33.9 | 8.05 | 8.25 | 0.4 | 2.9 | 94.4 | 117.6 | 6.2 | 7.3 |

| Site name | Depth Profile | Water Depth (m) | Temp | | EC | | Salinity | | pH | | Turbidity | | Dissolved Oxygen | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ºC | | µS/cm | | ppt | | - | | NTU | | % sat | | mg/L | |
| | | | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet |
| M21 | Surface | 0.3 | 26.8 | 30.9 | 54,606 | 51,513 | 36.1 | 33.7 | 8.09 | 8.24 | 0.6 | 1.0 | 94.5 | 111.0 | 6.2 | 6.9 |
| | Middle | 4.0 | 26.8 | 30.9 | 54,676 | 51,556 | 36.2 | 33.7 | 8.09 | 8.24 | 0.2 | 2.0 | 94.4 | 109.7 | 6.2 | 6.8 |
| | Bottom | 8.2 | 26.7 | 30.8 | 54,774 | 51,609 | 36.2 | 33.7 | 8.06 | 8.21 | 1.3 | 1.7 | 90.4 | 105.7 | 5.9 | 6.6 |
| M22 | Surface | 0.3 | 26.7 | 29.0 | 54,827 | 53,496 | 36.3 | 35.2 | 8.05 | 8.09 | 0.3 | 0.8 | 96.3 | 100.0 | 6.3 | 6.3 |
| | Middle | 5.1 | 26.7 | 30.2 | 54,816 | 52,442 | 36.3 | 34.4 | 8.06 | 8.22 | 0.3 | 1.3 | 96.3 | 103.3 | 6.3 | 6.4 |
| | Bottom | 10.5 | 26.6 | 30.3 | 54,844 | 52,983 | 36.3 | 34.8 | 8.06 | 8.20 | 0.1 | 0.9 | 95.6 | 99.8 | 6.3 | 6.2 |
| M23 | Surface | 0.3 | - | 29.4 | - | 53,661 | - | 35.3 | - | 8.15 | - | 3.1 | - | 98.4 | - | 6.2 |
| | Middle | 2.2 | - | 30.0 | - | 53,062 | - | 34.9 | - | 8.16 | - | 3.6 | - | 98.9 | - | 6.2 |
| | Bottom | 5.0 | - | 30.4 | - | 52,806 | - | 34.6 | - | 8.18 | - | 1.7 | - | 101.5 | - | 6.3 |
| M24 | Surface | 0.3 | 27.0 | 29.5 | 54,403 | 53,999 | 35.9 | 35.6 | 8.11 | 8.07 | 0.7 | 3.6 | 99.8 | 99.8 | 6.5 | 6.3 |
| | Middle | 7.5 | 27.0 | 30.2 | 54,374 | 53,337 | 35.9 | 35.1 | 8.10 | 8.20 | 0.6 | 0.9 | 98.9 | 102.8 | 6.5 | 6.4 |
| | Bottom | 15.9 | 26.8 | 30.1 | 54,415 | 54,072 | 36.0 | 35.6 | 8.10 | 8.19 | 0.6 | 0.5 | 98.0 | 100.9 | 6.4 | 6.3 |
| ***Guideline values (marine water)*** | ***PNG ER*** | | - | | - | | - | | - | | - | | - | | *>5* | |
| | ***ANZECC*** | | - | | - | | - | | *8.0-8.4* | | - | | *>90* | | - | |

Note: Yellow highlighted cells indicate exceedance of the ANZECC guideline values, while orange highlighted cells indicate exceedance of the PNG ER guideline values



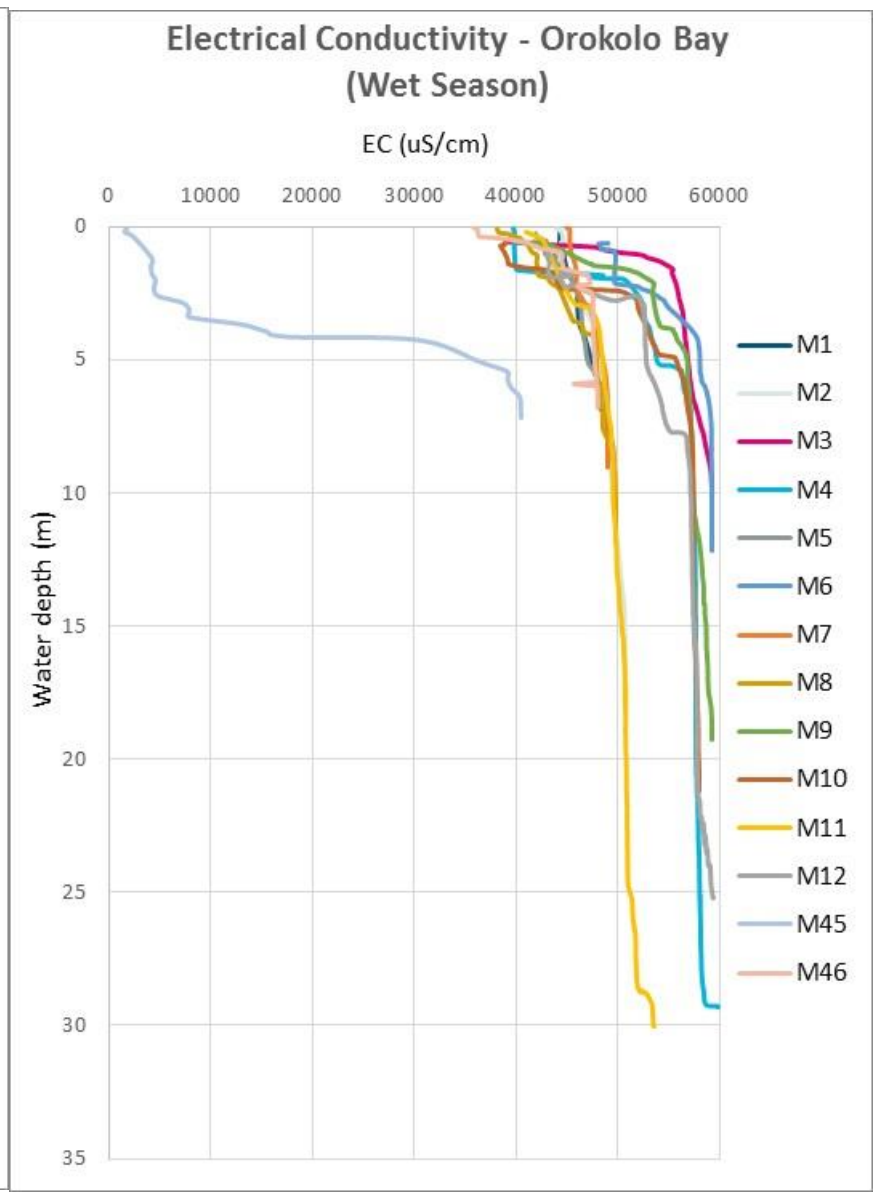
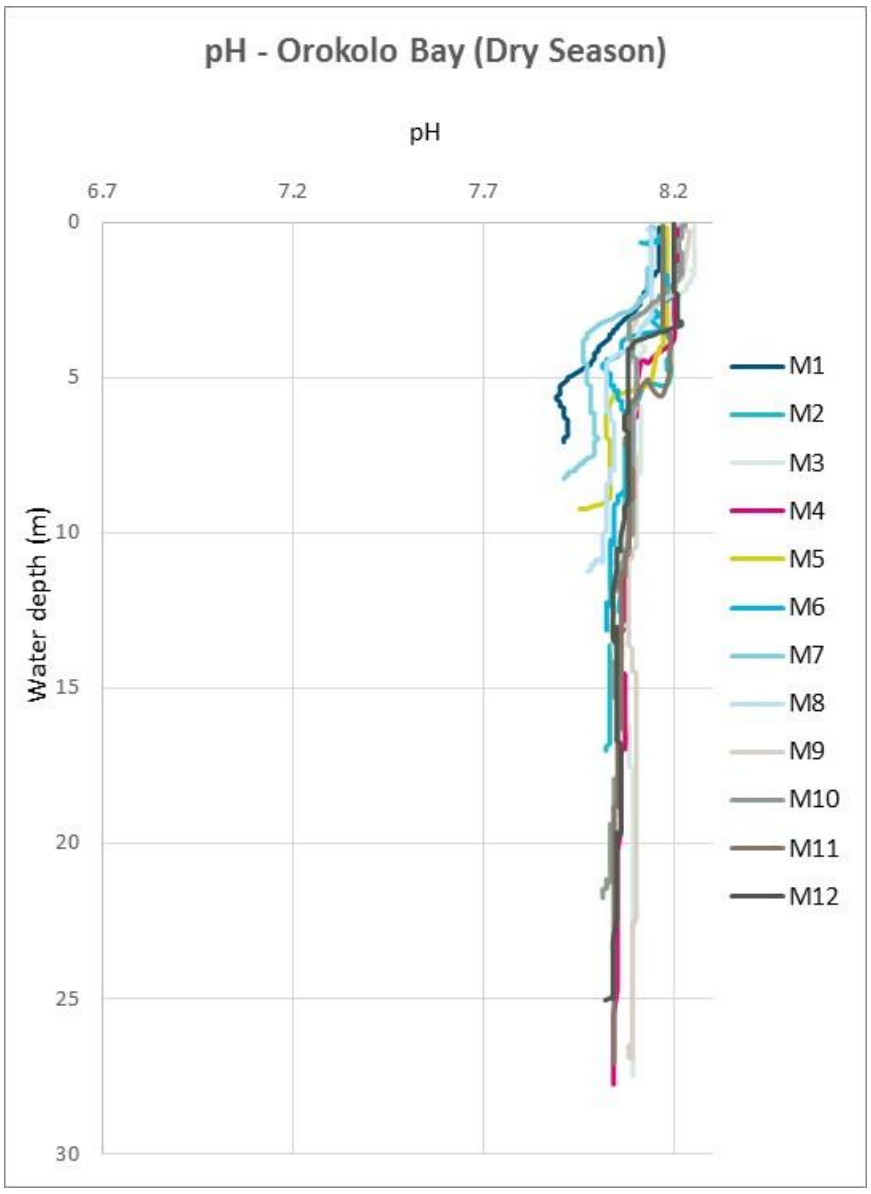
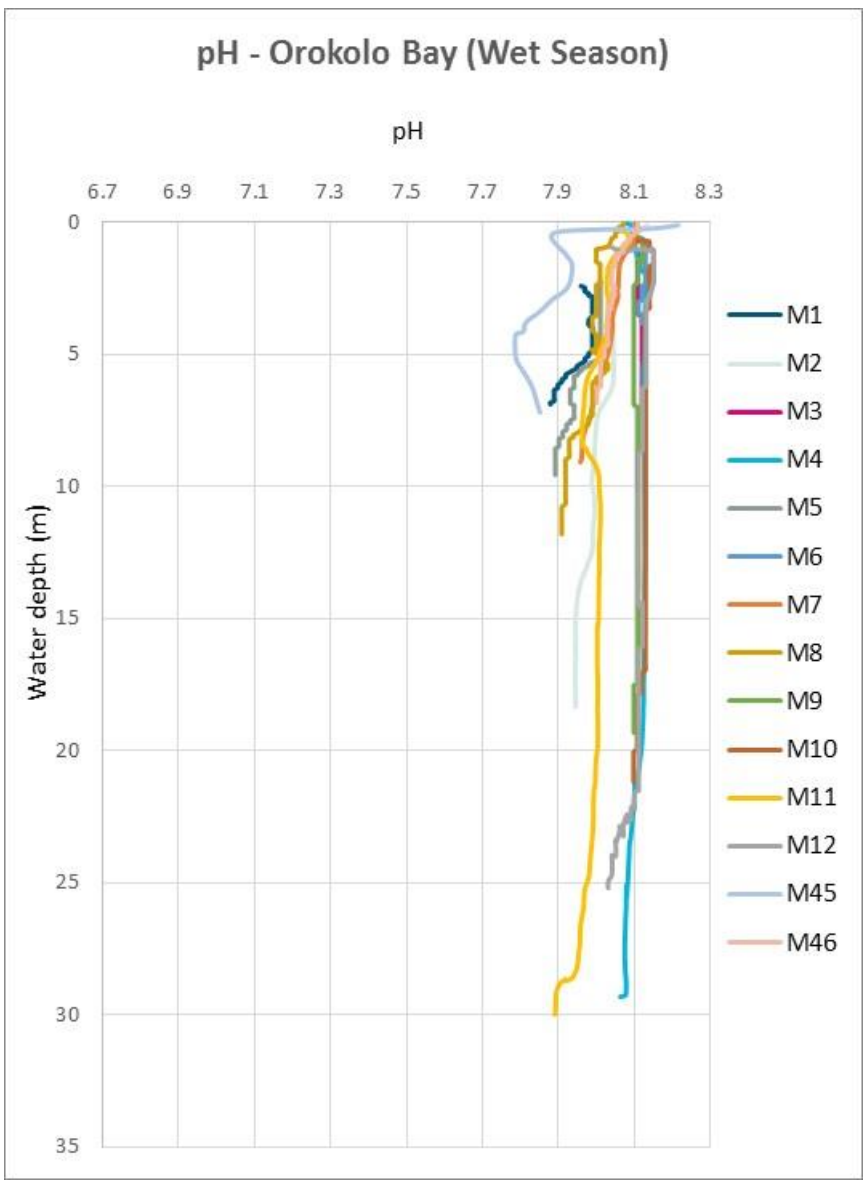
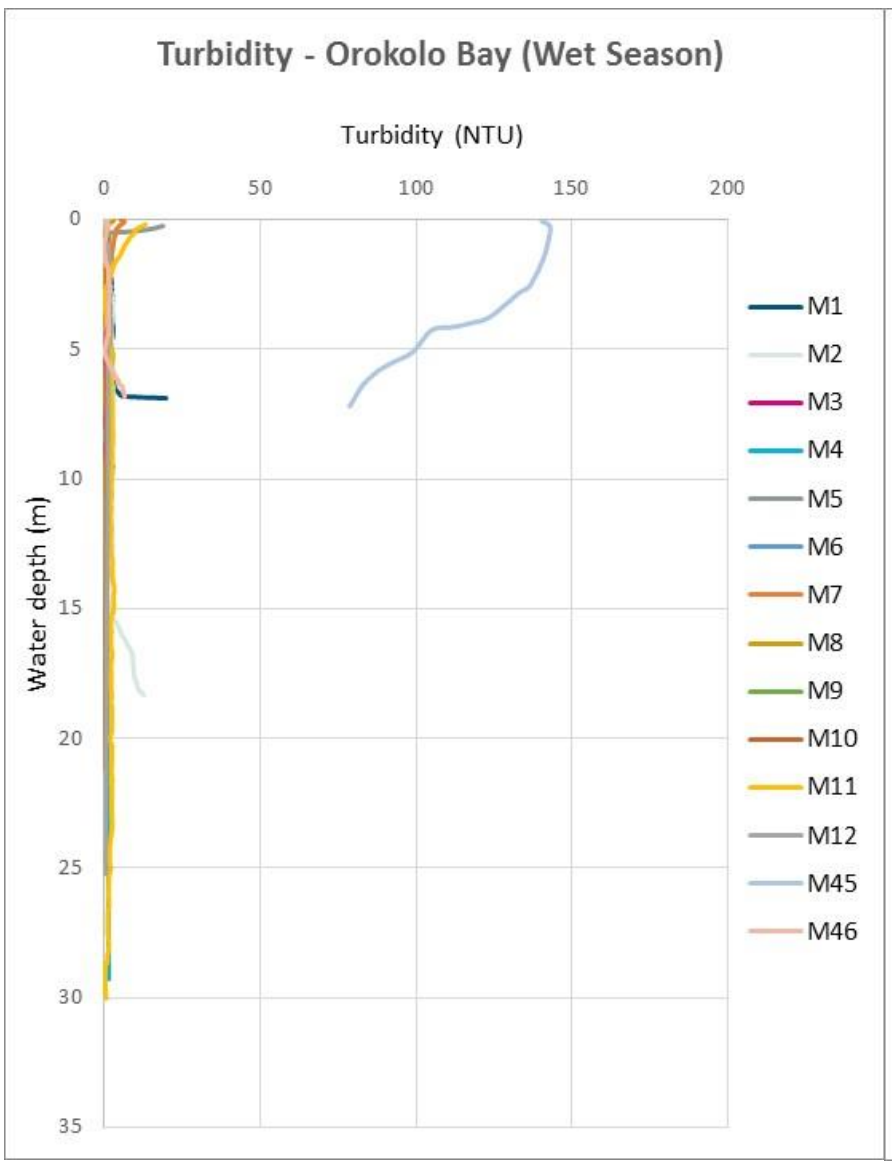




**Figure 6-1 Orokolo Bay In Situ Water Quality Profiling Data – Temperature and Electrical Conductivity (Wet Season and Dry Season)**



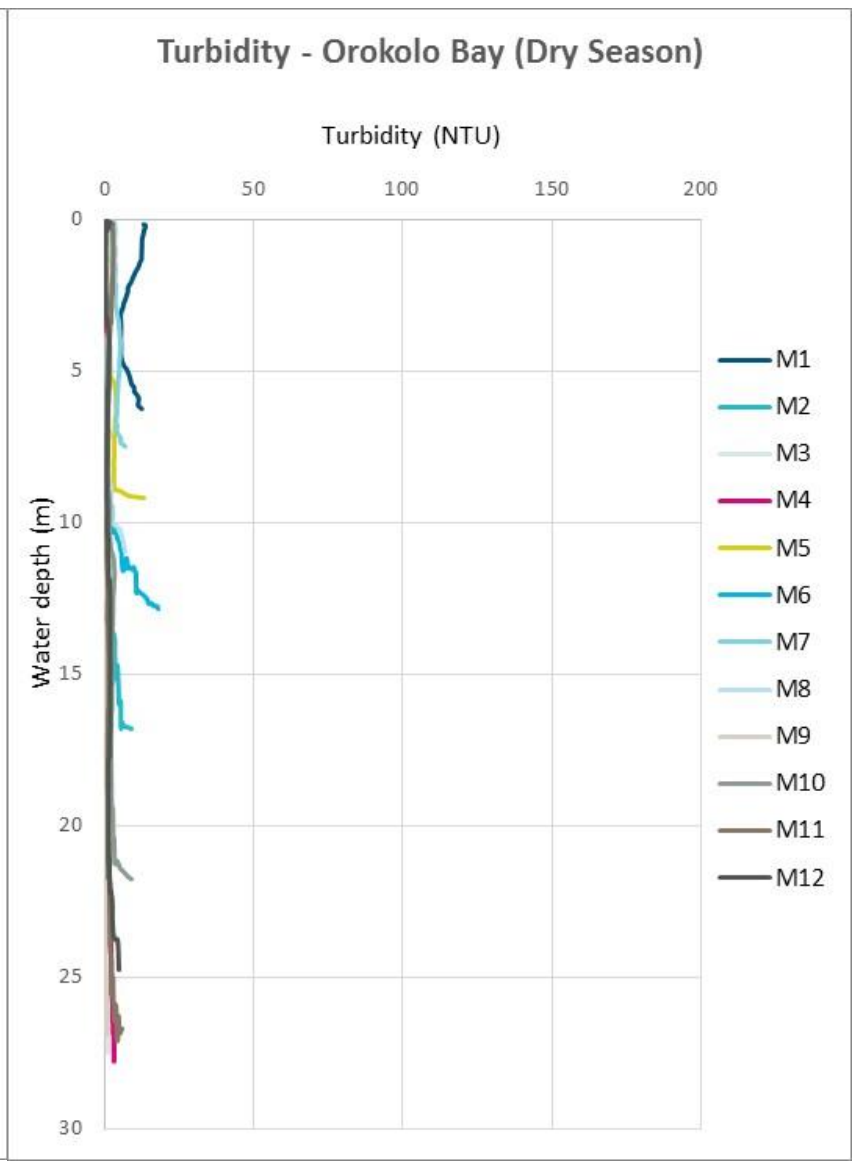




**Figure 6-2 Orokolo Bay In Situ Water Quality Profiling Data – pH and Turbidity (Wet Season and Dry Season)**

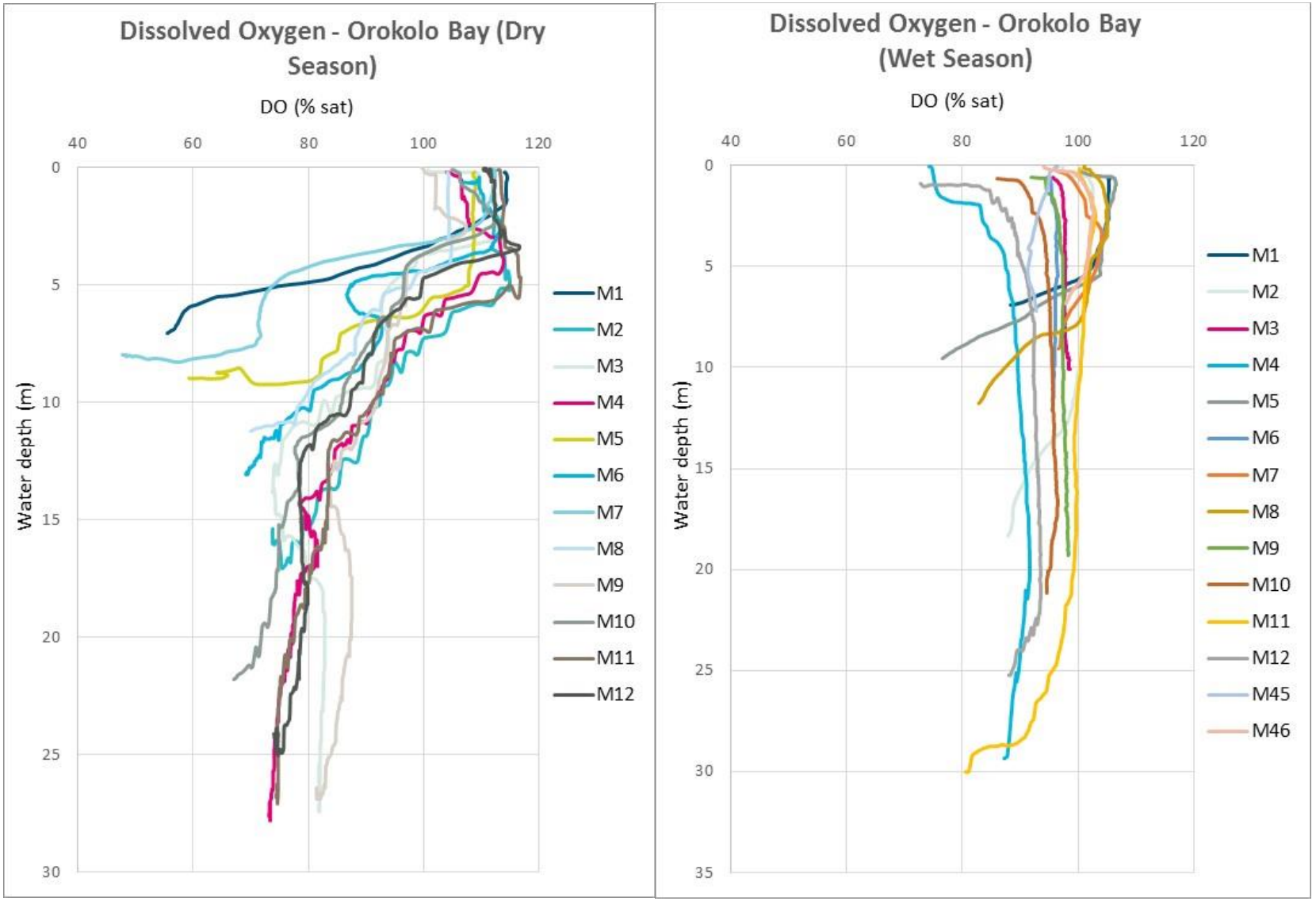



**Figure 6-3 Orokolo Bay In Situ Water Quality Profiling Data – Dissolved Oxygen (Wet Season and Dry Season)**

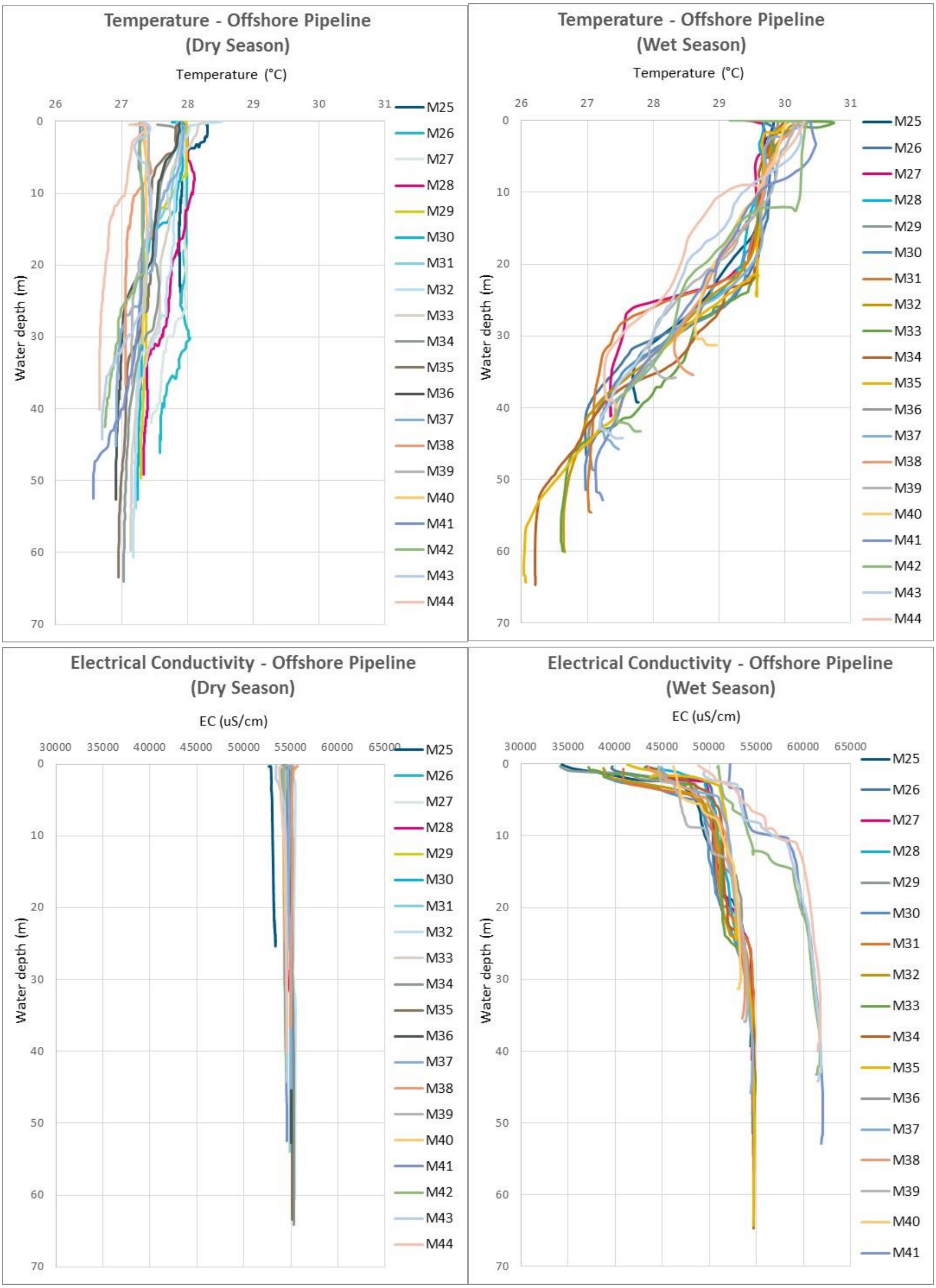
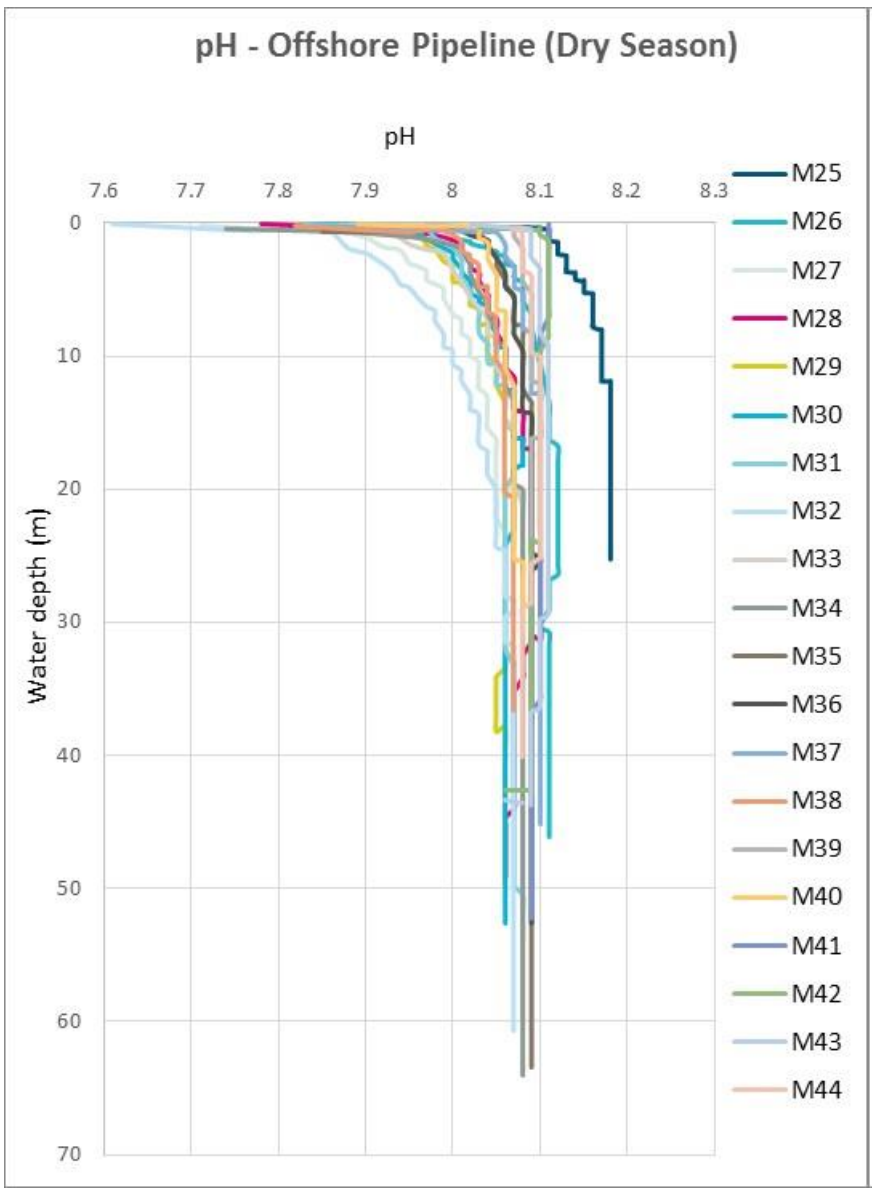
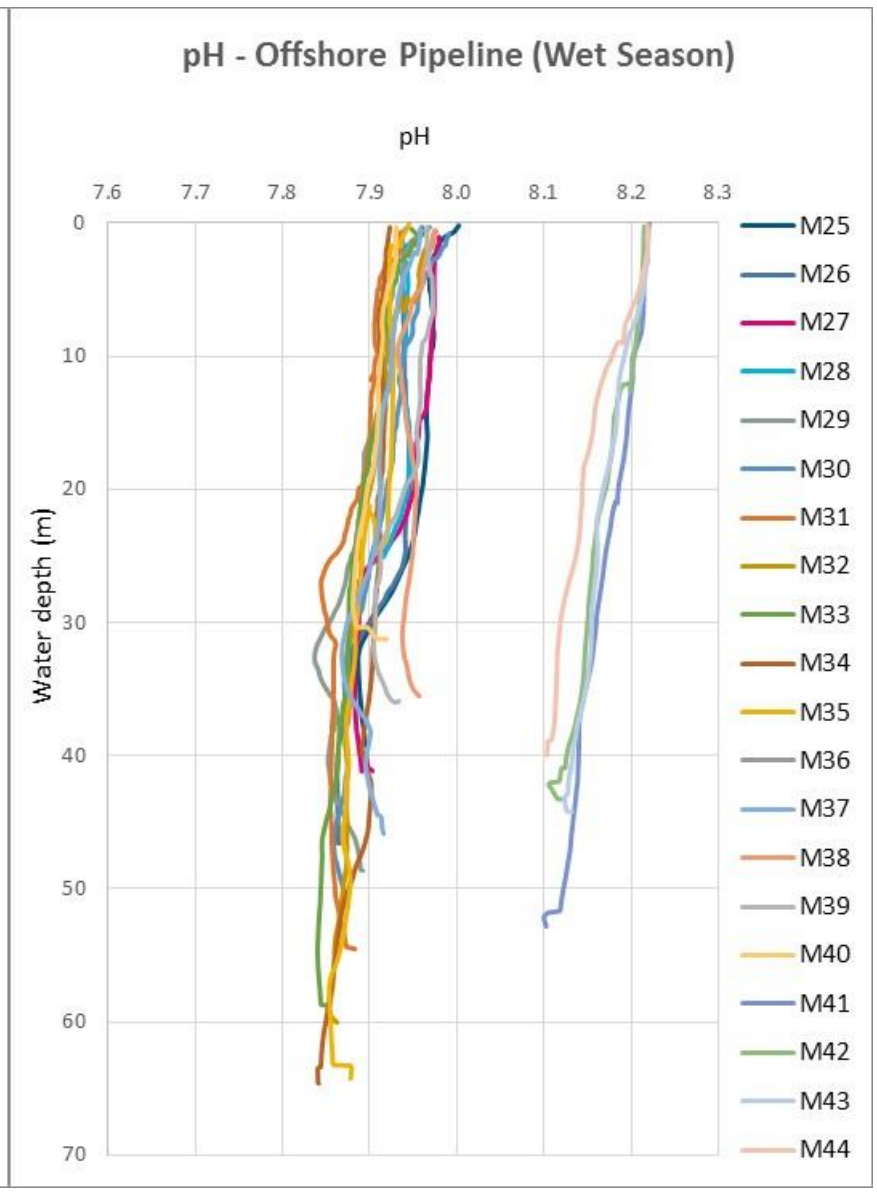
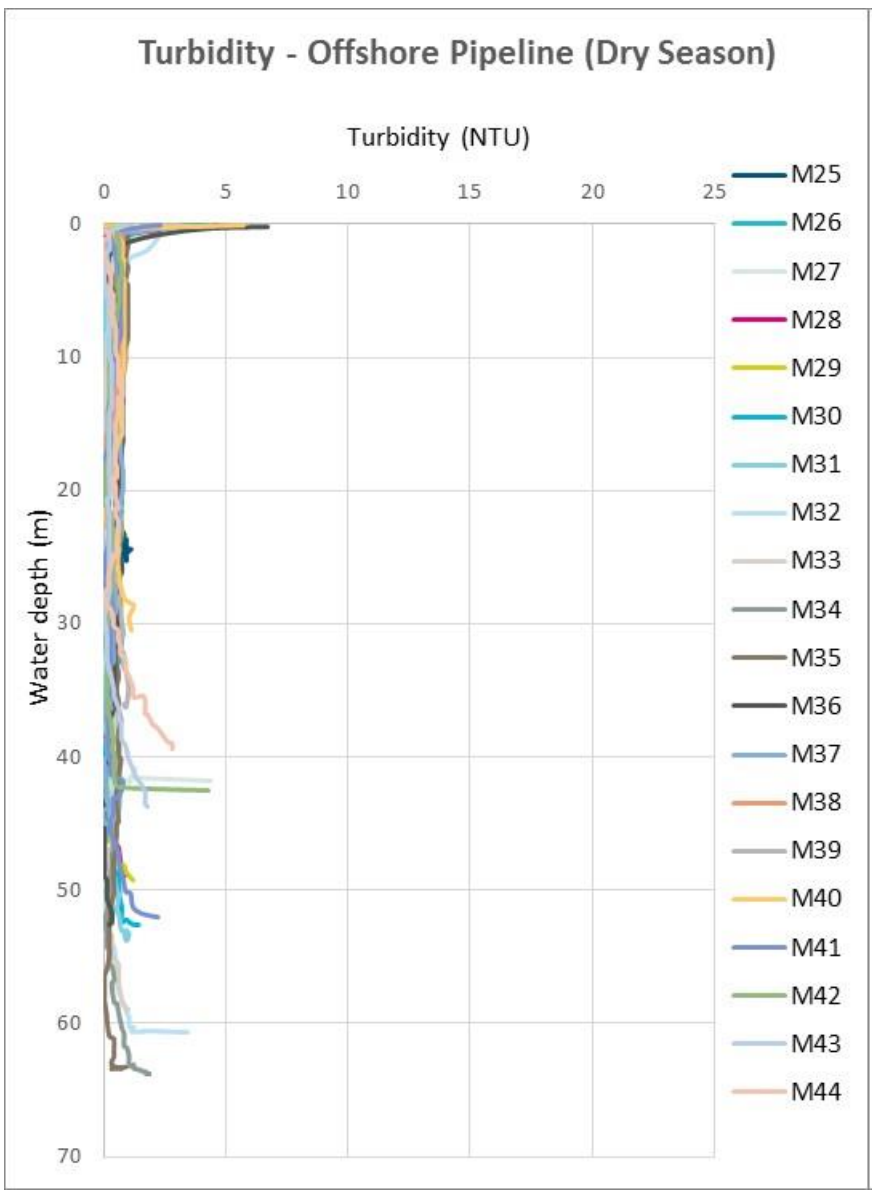



**Figure 6-4 Offshore Export Pipeline Corridor In Situ Water Quality Profiling Data – Temperature and Electrical Conductivity (Wet Season and Dry Season)**



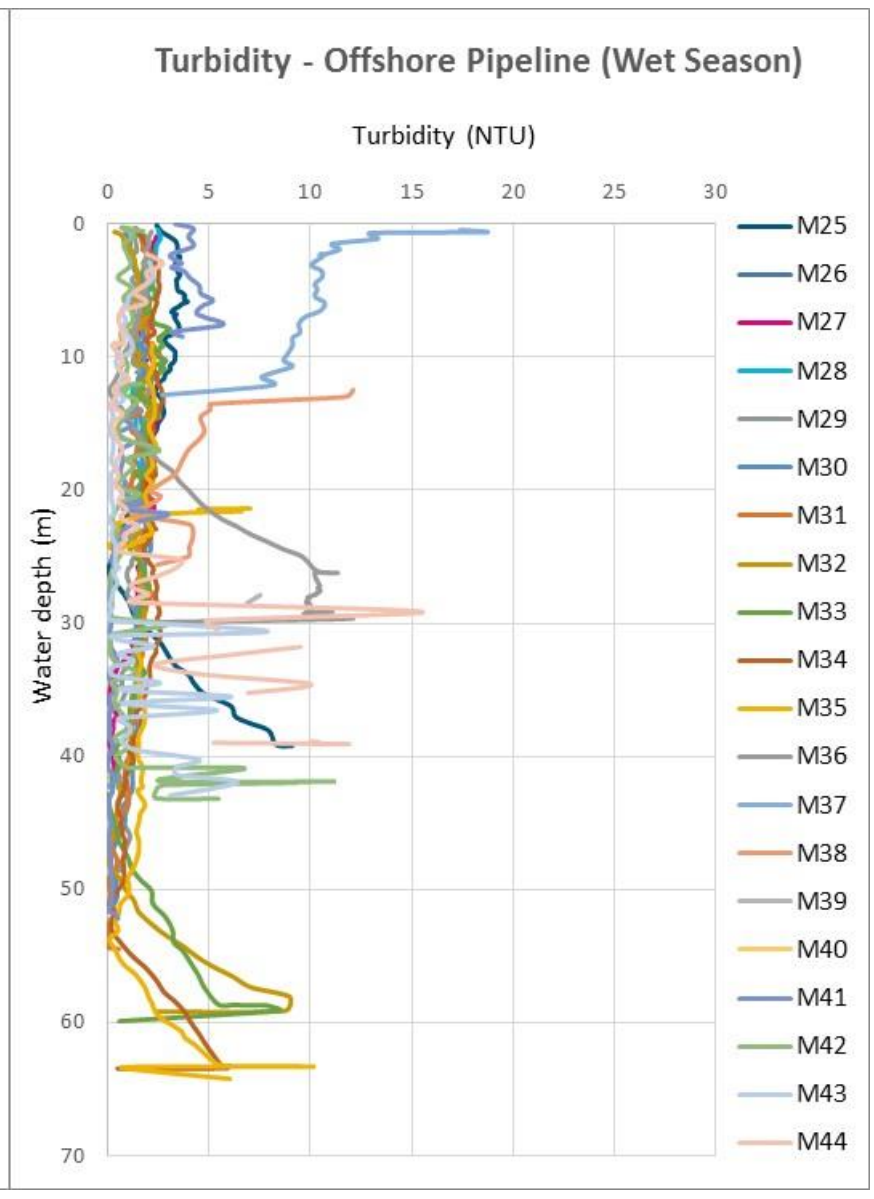




**Figure 6-5 Offshore Export Pipeline Corridor In Situ Water Quality Profiling Data – pH and Turbidity (Wet Season and Dry Season)**

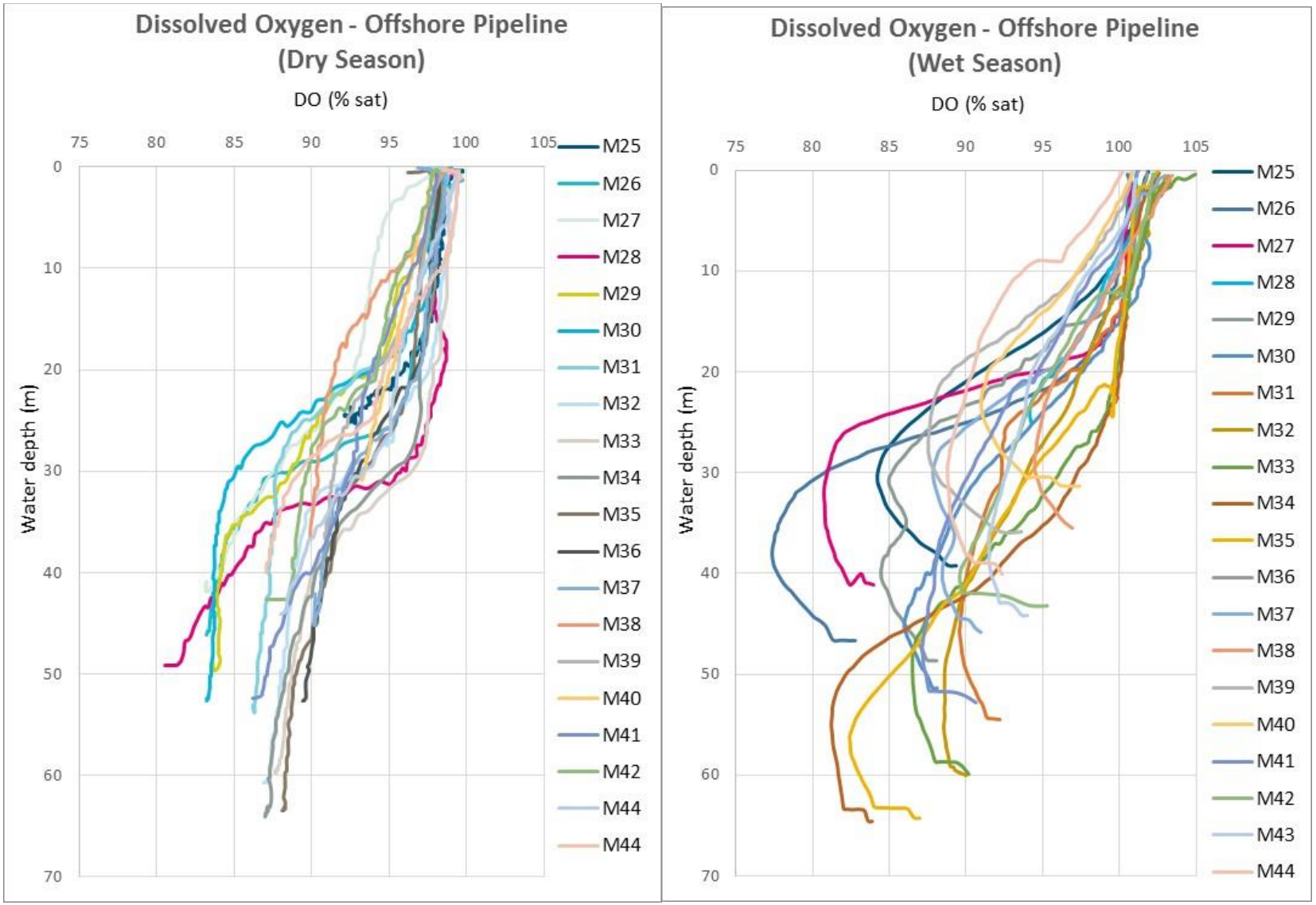



**Figure 6-6 Offshore Export Pipeline Corridor In Situ Water Quality Profiling Data – Dissolved Oxygen (Wet Season and Dry Season)**

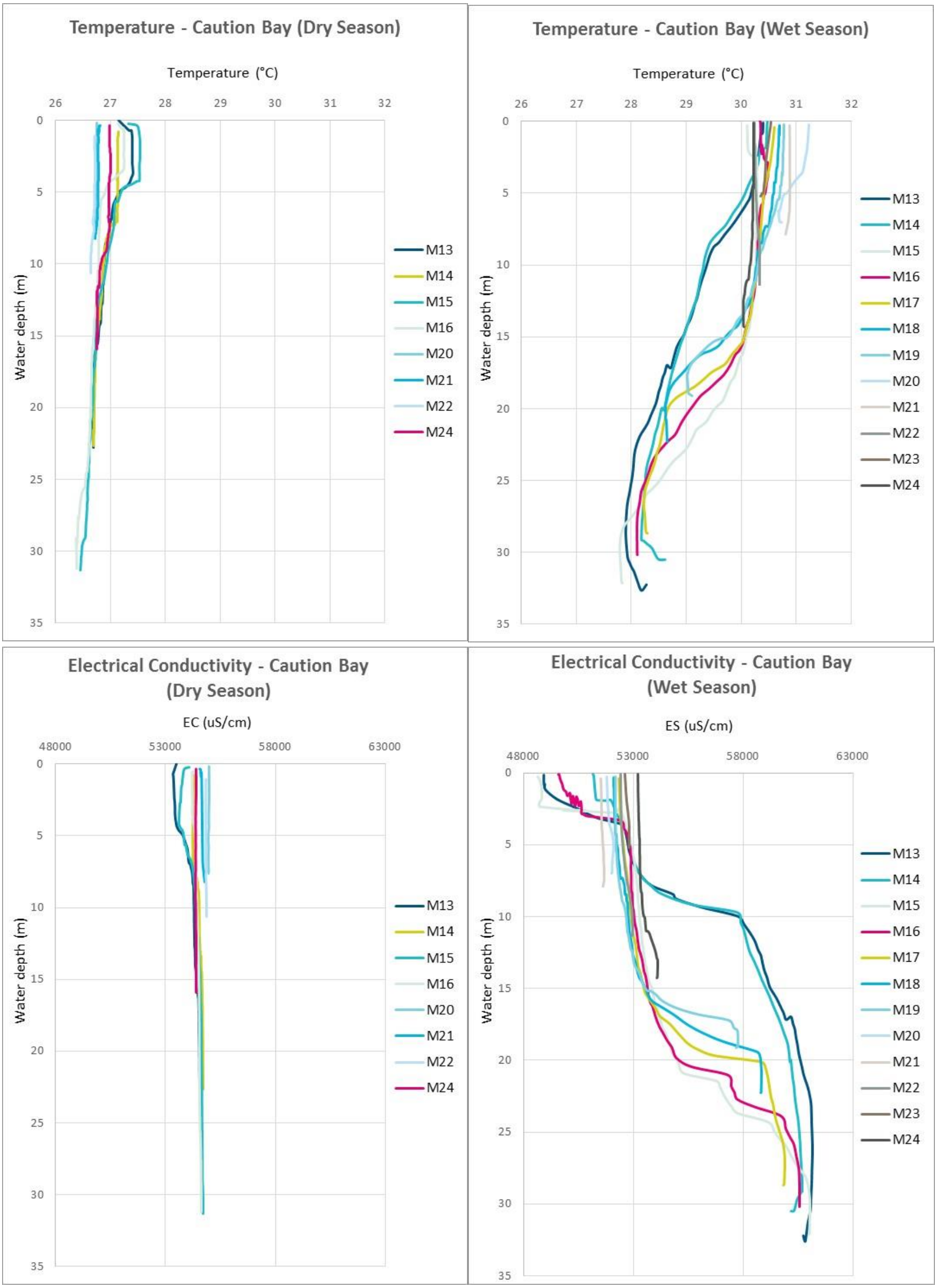



**Figure 6-7 Caution Bay In Situ Water Quality Profiling Data – Temperature and Electrical Conductivity (Wet Season and Dry Season)**

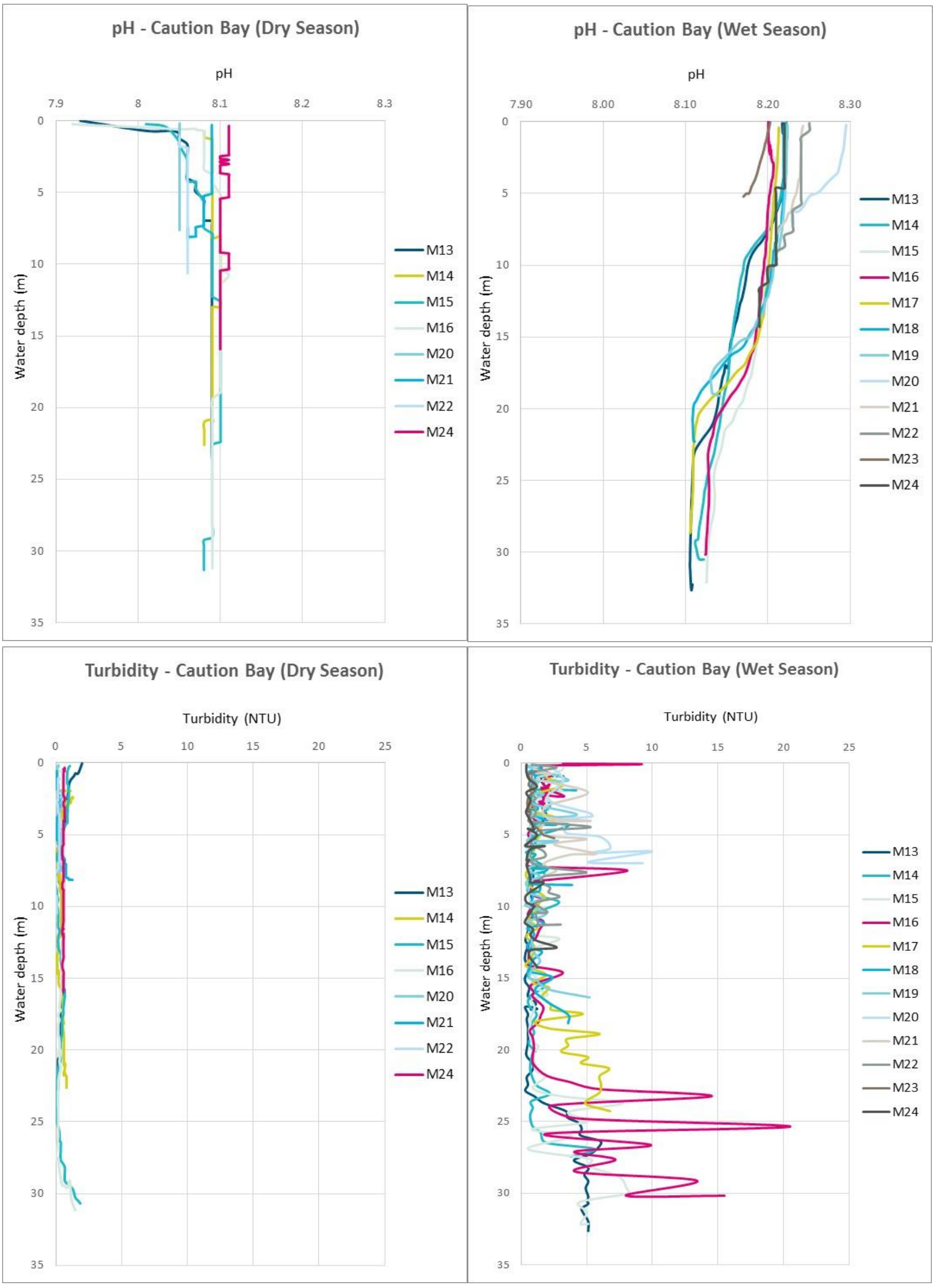



**Figure 6-8 Caution Bay In Situ Water Quality Profiling Data – pH and Turbidity (Wet Season and Dry Season)**

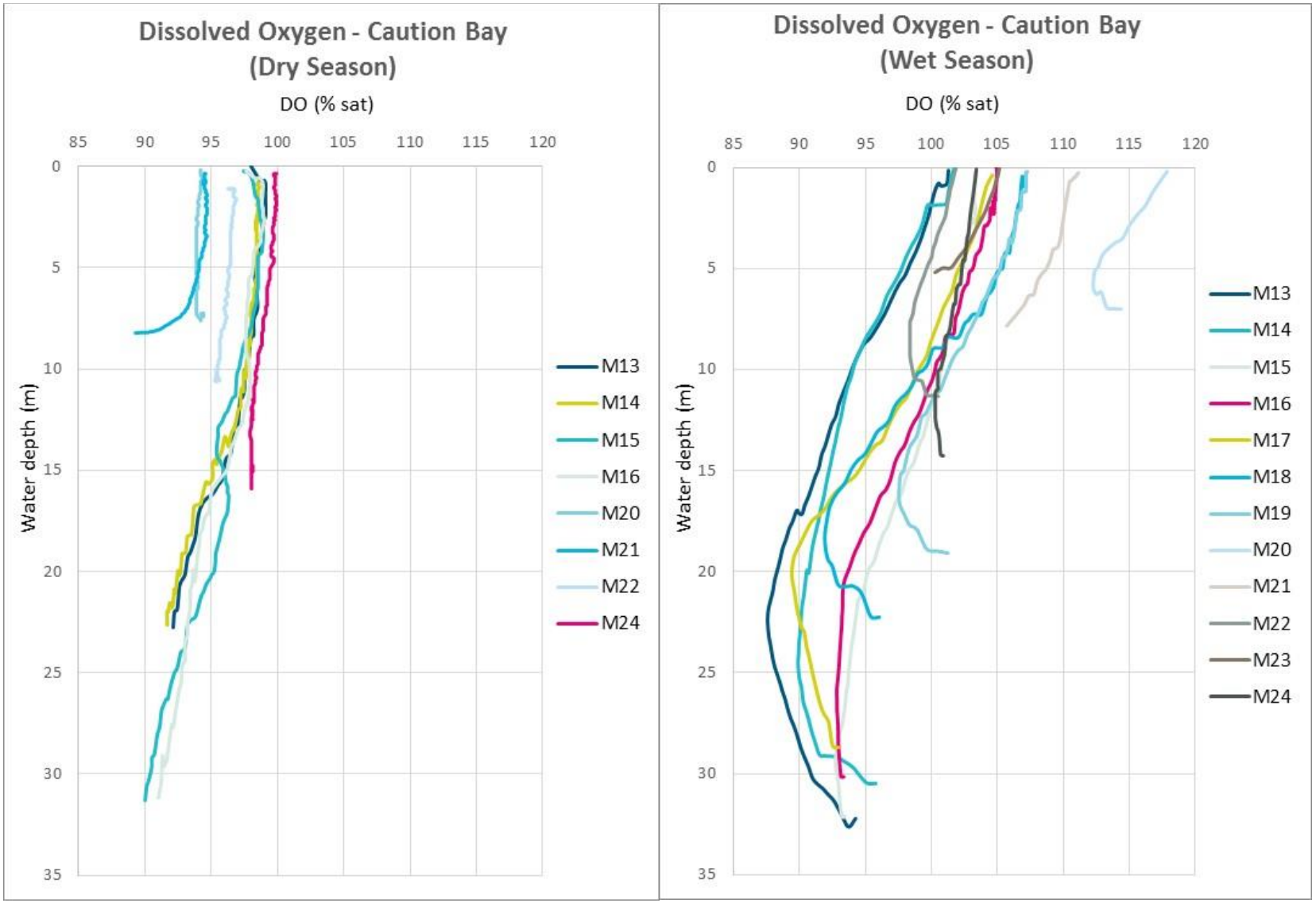



**Figure 6-9 Caution Bay In Situ Water Quality Profiling Data – Dissolved Oxygen (Wet Season and Dry Season)**

## 6.2.2 Continuous Water Quality Measurements

### *6.2.2.1 Turbidity*

**Dry Season**

Turbidity data collected during the dry season survey using bottom-mounted instruments at Site A (near Site M8) and Site B (near Site M6 reef) (Figure 5-1) are presented in Figure 6-10, with minimum, median and maximum provided in Table 6-4. The turbidity data collected from the bottom-mounted instruments is generally much higher than the water quality profiling data due to the nature of profiling (though the entire water column) and timing of profiling (undertaken during calmer periods when turbidity was lower in the graphs below). The bottom-mounted instruments are also exposed to resuspended bed sediments mobilized in water currents and wave action.

Note that the turbidity sensor at Site A was not able to record turbidity measurements above 110 NTU due to this being set as the upper limit of measurement (indicated by sensor cap line in Figure 6-10). From the data collected at Site B, it is assumed that turbidity would have spiked much higher than 100 NTU, but likely less than 400 NTU (i.e. maximum value at Site B).

The data, in particular from Site B, indicates that turbidity is correlated with weather conditions. Spikes in turbidity were less evident during periods of calm winds and seas which were experienced early in the dry season survey (22 June to 28 June) compared with periods of higher winds and rougher seas which were experienced in the second week of the survey (29 June to 4 July).

**Wet Season**

Turbidity data collected during the wet season survey using bottom-mounted instruments at Site B (reef) and Site C (Purari River mouth) (Figure 5-1) are presented in Figure 6-11, with minimum, median and maximum provided in Table 6-4. Similar to the water profiling data, the instrument data indicates that turbidity was lower during the wet season survey compared to the dry season survey.

Turbidity at Site B (reef) generally remained below 20 NTU for the 10 days of deployment, with some occasional higher spikes. Weather conditions during the deployment period was generally calm, which is reflected in the turbidity data.

Turbidity at Site C (Purari River mouth) generally remained below 50 to 100 NTU for most of the period of deployment. However, during the last few days of deployment the turbidity spiked to about 450 NTU. Observations during the field trip were that this was due to a large slug of turbid water from rainfall in the Purari River catchment. This slug of turbid water was not picked up in the Site B turbidity data, indicating that freshwater flows from the Purari River were directed away from Site B, or otherwise were diluted or settled out by the time it reached this location.

**Table 6-4 Comparison of Continuous Turbidity Data Across Sites and Seasons**

| Turbidity (NTU) | Site A (dry) | Site B (dry) | Site B (wet) | Site C (wet) |
|---|---|---|---|---|
| Minimum | 14 | 4 | 1 | 2 |
| Median | 103 | 91 | 4 | 18 |
| Maximum | 110* | 450 | 68 | 471 |

*110 NTU maximum due to sensor cap

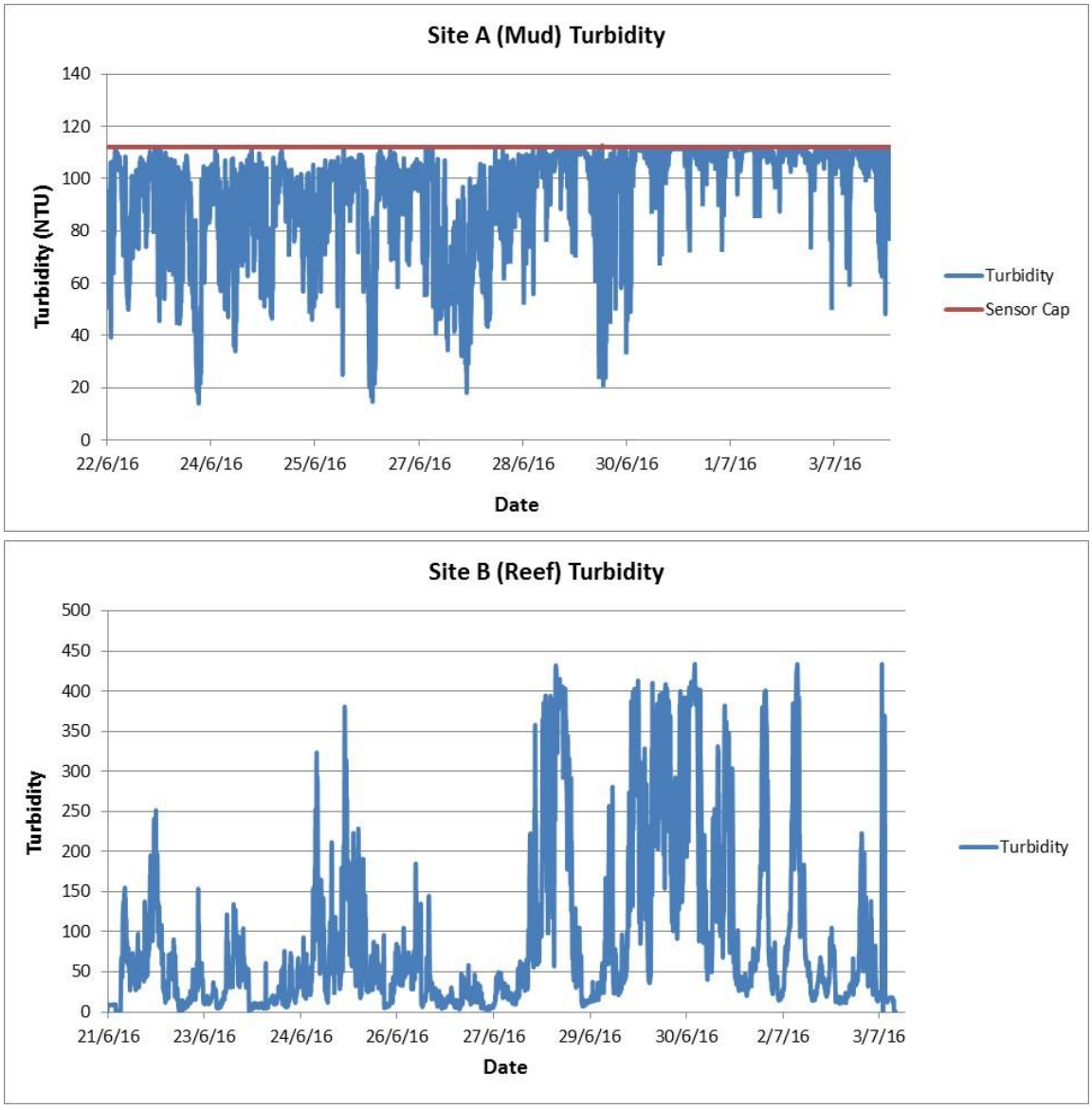



**Figure 6-10 Dry Season Turbidity Data from Site A (top) and Site B (bottom)**

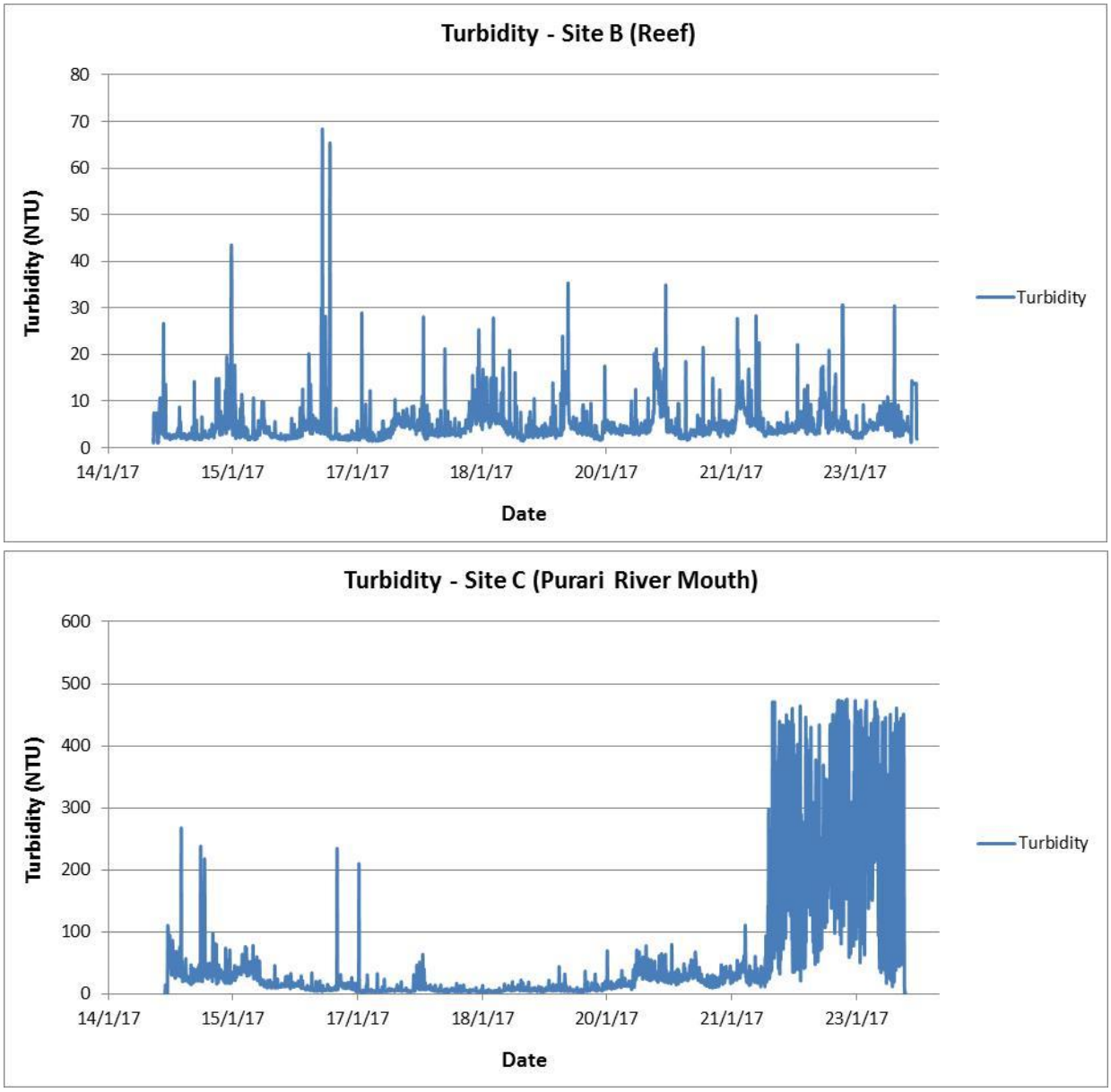



**Figure 6-11 Wet Season Turbidity Data from Site B (top) and Site C (bottom)**

#### 6.2.2.2 Temperature, Conductivity, Depth

**Dry Season**

Coincident with turbidity instrument deployment, continuous measurements of temperature, EC and depth were collected at Site A (mud) and Site B (reef) during the dry season survey. The temperature and water depth data are presented in Figure 6-12, while the conductivity and water depth data are presented in Figure 6-13.

As shown in Figure 6-12 and Figure 6-13, the instruments were deployed on bottom-mounted frames on the sea floor in the following approximate water depths:

- ~12 m at Site A
- ~15 m at Site B.

The fluctuation in water depth in Figure 6-12 and Figure 6-13 is caused by the tide.

Figure 6-12 shows that water temperature was consistently around 28 to 29°C, with temperature decreasing slightly at both sites towards the end of the deployment period.

Figure 6-13 indicates that conductivity in lower water layers was variable at both sites, but was within a range of approximately 54,000 µS/cm to 57,000 µS/cm. The slight fluctuations in conductivity at depth may be the result of occasional mixing of less saline surface waters during varying wind or riverine flow events.

The water depth data indicates that the tidal range during the dry season survey was approximately 1 m during the neap tides and just over 2 m during the spring tides.

**Wet Season**

Temperature, conductivity and depth data was collected at Site B (reef) and Site C (Purari River mouth) during the wet season survey. The temperature and water depth data is presented in Figure 6-14, while the conductivity and water depth data is presented in Figure 6-15.

As shown in Figure 6-14 and Figure 6-15, the instruments were deployed on bottom-mounted frames on the sea floor in the following approximate water depths:

- ~10 m at Site C.
- ~18 m at Site B.

Figure 6-14 indicates that was water temperature maintained around 29 to 30°C at the Purari River mouth (Site C) and around 28.5 to 29.5°C in the deeper waters at Site B.

Figure 6-15 indicates that conductivity of bottom waters was slightly lower at the Purari River mouth (Site C) compared to Site B, and was variable at both sites. A decrease in EC at Site C coincided with the turbid freshwater flows in the Purari River as a result of rainfall higher up in the Purari catchment (as described above).

Similar to the dry season survey, the water depth data indicates that the tidal range during the wet season survey was approximately 1 m during the neap tides and approximately 2 m during the spring tides.

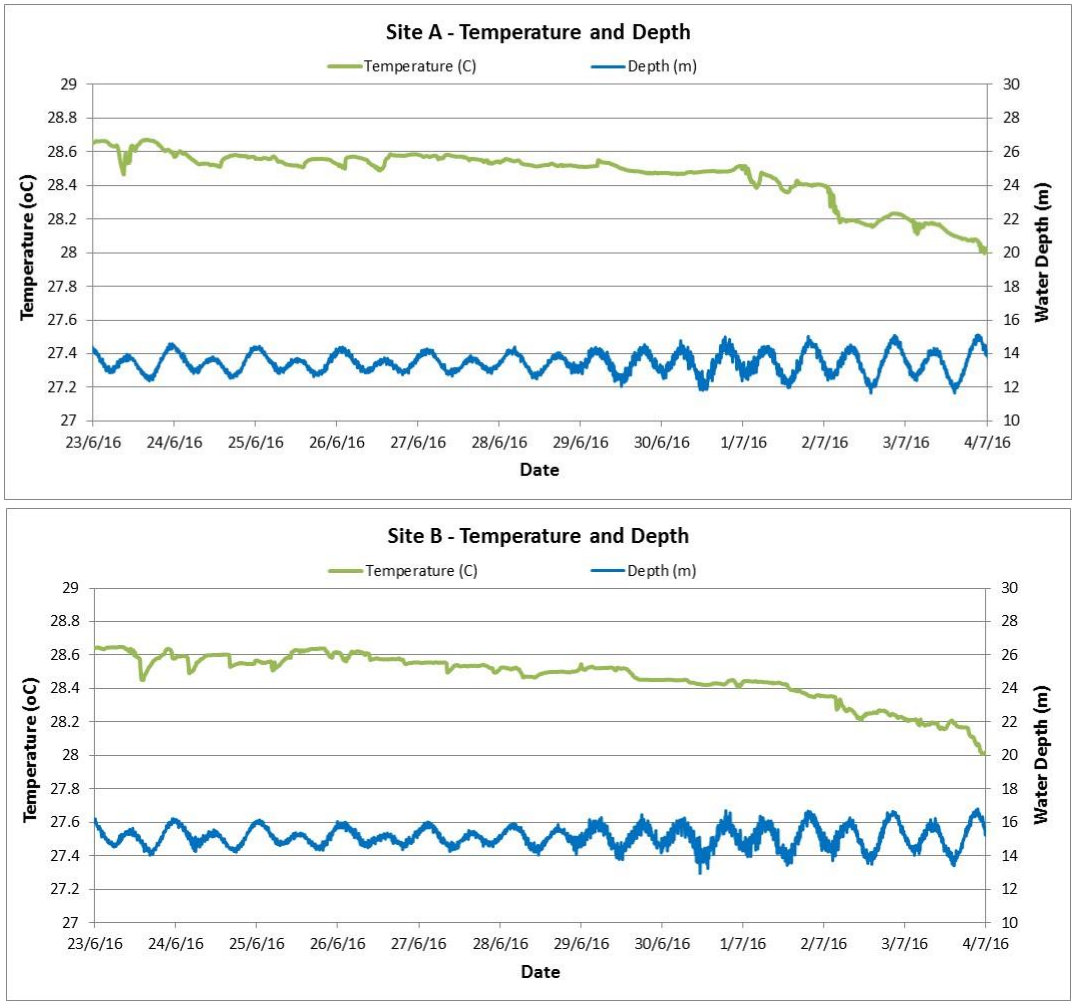



**Figure 6-12 Dry Season Temperature and Water Depth Data from Site A (top) and Site B (bottom)**

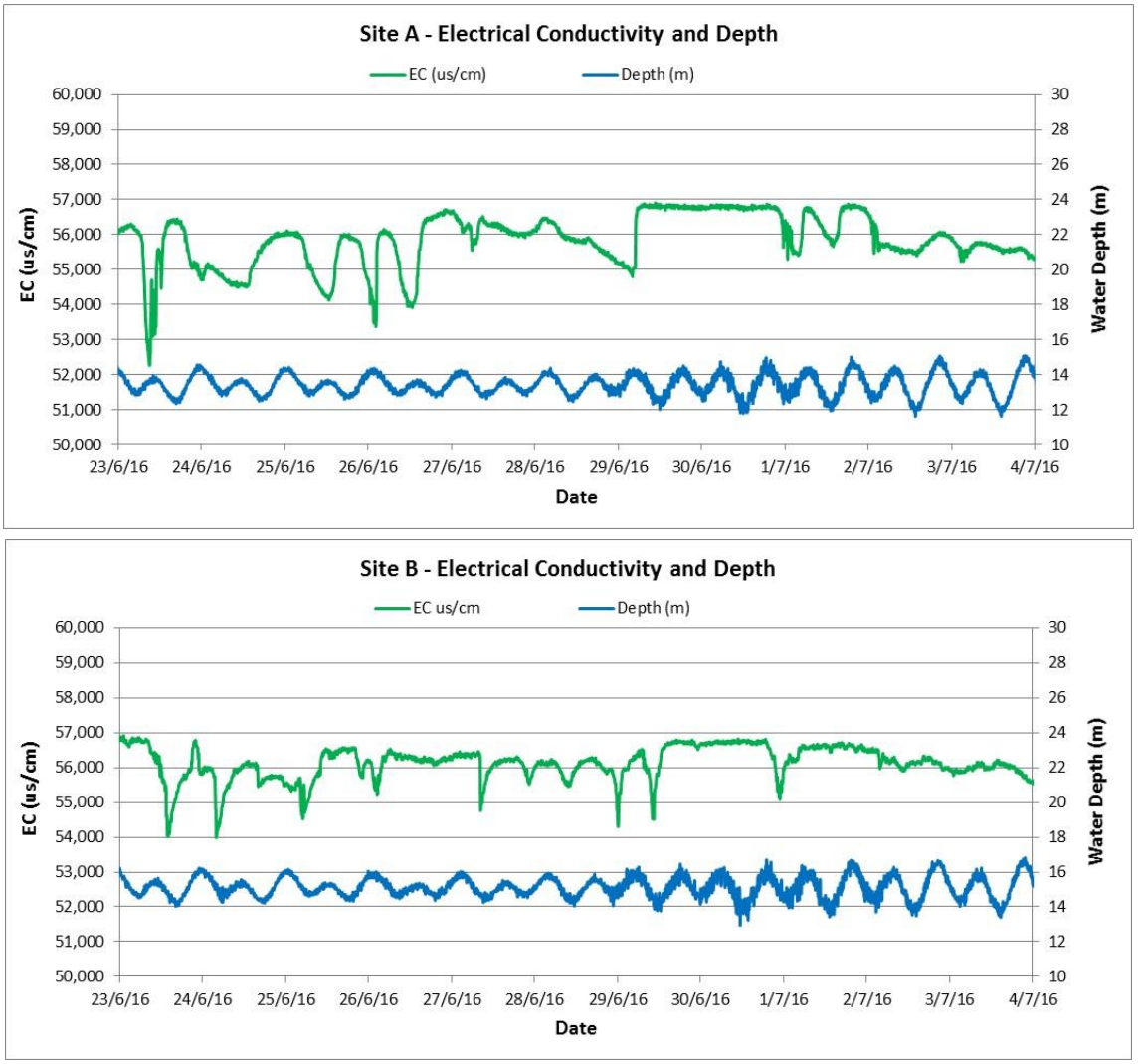



**Figure 6-13 Dry Season Electrical Conductivity and Water Depth Data from Site A (top) and Site B (bottom)**

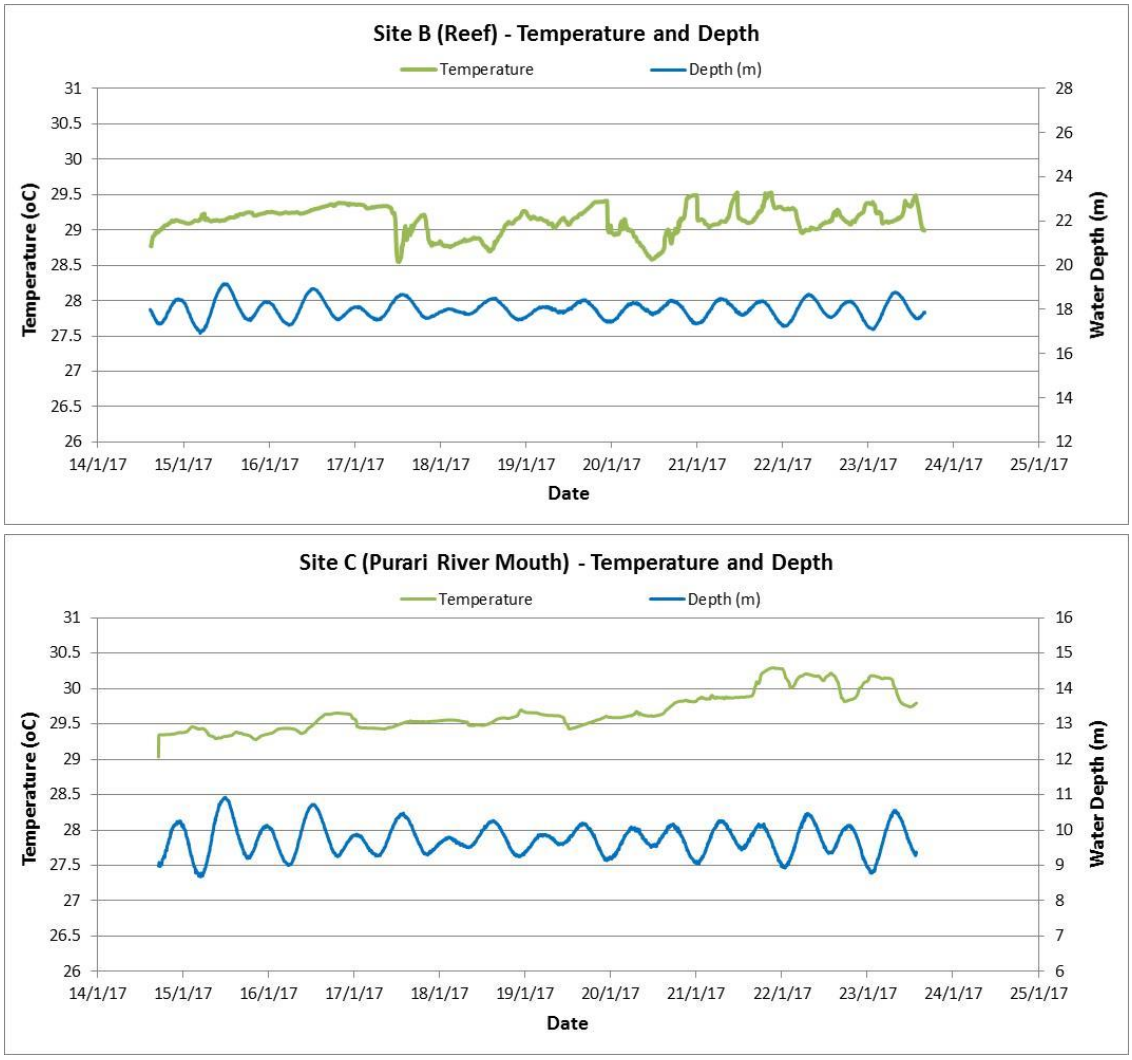



**Figure 6-14 Wet Season Temperature and Water Depth Data from Site B (top) and Site C (bottom)**

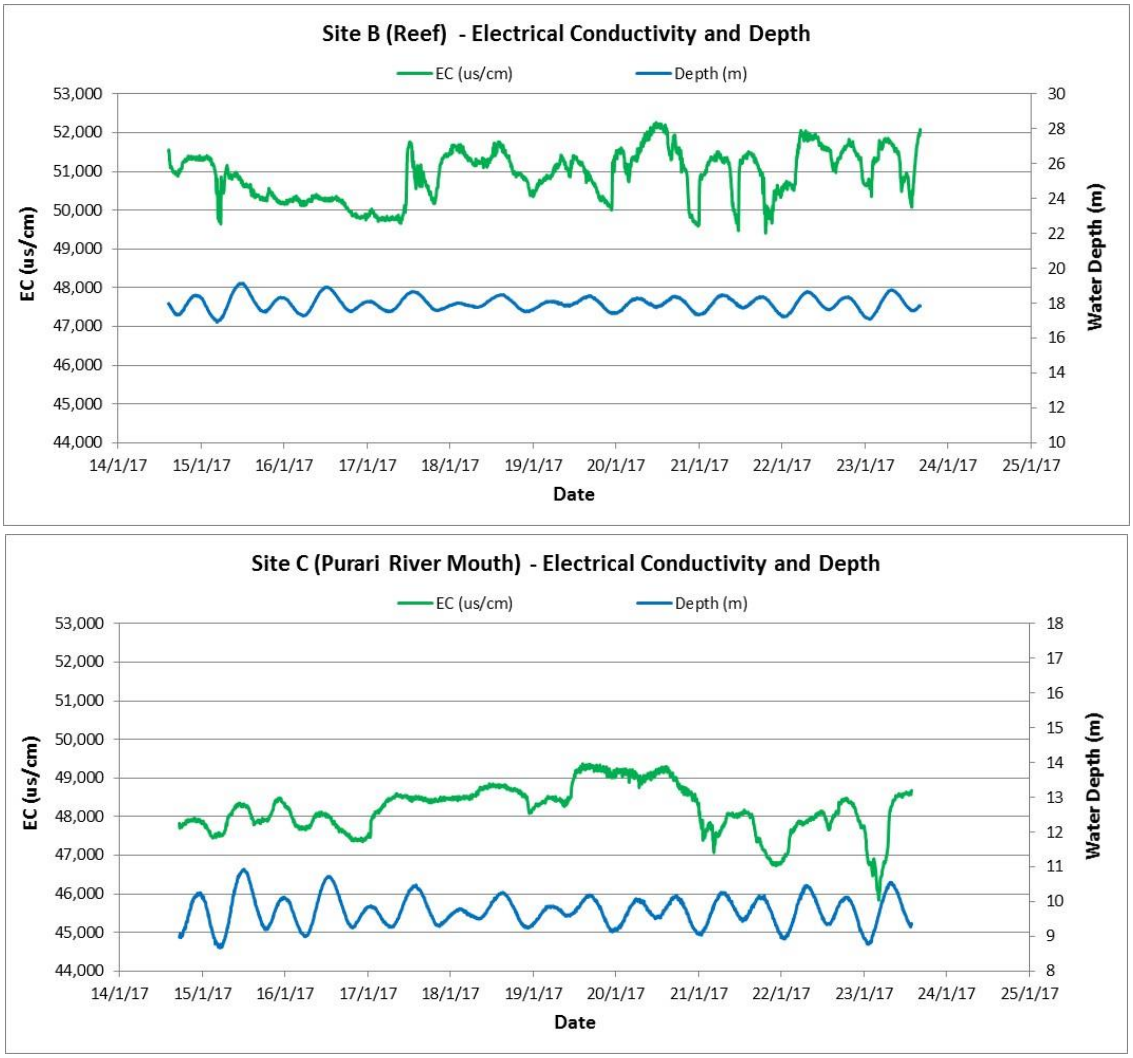



**Figure 6-15 Wet Season Electrical Conductivity and Water Depth Data from Site B (top) and Site C (bottom)**

### 6.2.3 Laboratory Data

Laboratory results from samples collected during the June-July 2016 and January 2017 surveys are presented in the following sections, and laboratory analysis reports are included in Appendix D.

#### *6.2.3.1 Metals and Metalloids*

Total and dissolved metals/metalloids data from samples collected in June-July 2016 and January 2017 are presented in Table 6-5 to Table 6-8. Water quality guideline values for dissolved metals/metalloids (filtered <0.45 µm) are included at the bottom of these tables, and dissolved concentrations that exceed any of these guideline values are highlighted.

NOTE: As the guideline values are relevant to dissolved concentrations only, total concentrations (which are sometimes substantially higher than dissolved fractions) have not been compared to the guideline values. Laboratory limits of reporting (LORs) have also been included for reference purposes.

The metals/metalloids results can be summarized as follows:

- Total and dissolved concentrations of metals/metalloids were relatively consistent between the dry season and wet season surveys and between sites along the offshore export pipeline corridor, including within Orokolo Bay and Caution Bay.
- Total concentrations were similar to dissolved concentrations for most metals/metalloids, except for aluminum (Al) and iron (Fe) which generally had higher total concentrations than dissolved concentrations.
- Dissolved concentrations of all metals/metalloids were below the ANZECC and PNG ER guideline values at all sites during both surveys, with the exception of the following:
    - Dissolved copper in surface waters at Site M6 (2 µg/L) in Orokolo Bay during the dry season survey which slightly exceeded the ANZECC guideline value (1.3 µg/L), but was below the PNG ER (30 µg/L) guideline value. Note that this concentration (2 µg/L) is close to the limit of reporting (1 µg/L), where relatively large variation in analysis results can be expected to occur (i.e., if the sample was re-analyzed it would be very possible that the result would be less than the limit of reporting and the guideline value).
    - Dissolved mercury in bottom waters at Site M10 (0.2 µg/L) in Orokolo Bay during the wet season survey which slightly exceeded the ANZECC guideline value (0.1 µg/L) and was equal to the PNG ER guideline value (0.2 µg/L). This concentration is also close to the limit of reporting (0.1 µg/L), where relatively large variation in analytical results can be expected to occur.
- Dissolved concentrations of all metals/metalloids were relatively consistent between sites, with most sites recording concentrations below the laboratory LOR. The exception to this was strontium (Sr), which is a natural constituent of seawater and therefore typically found in high concentrations in the marine environment. Strontium was found in lower concentrations in surface waters at Orokolo Bay sites during the dry season, likely due to dilution from freshwater flows from the Purari River. This is evident in surface waters in Orokolo Bay during the dry season having lower EC/salinity (Section 6.2.1). During the wet season, strontium and EC were consistent through the water column at sites in Orokolo Bay, providing further evidence that the freshwater surface lens was not as evident in the wet season survey (i.e. stratification of the water column was less pronounced - Section 6.2.1).

- In general, concentrations of metals/metalloids were relatively similar in samples collected in surface, middle and bottom layers of the water column. The exceptions were elevated total aluminum and iron concentrations in some bottom samples at Orokolo Bay. These bottom samples also had higher suspended sediment concentrations, so it is not unusual that aluminum and iron are elevated as these metals are naturally high in sediments. This is illustrated in the much higher aluminum and iron concentrations at Site M45 at the mouth of the Purari River, which also had high turbidity and suspended sediments.

**Table 6-5 Orokolo Bay – Total Metals/Metalloids Data (Dry Season and Wet Season)**

| Site | Depth Profile (m) | Al | | As | | Ba | | Cd | | Cr | | Co | | Cu | | Fe | | Hg | | Pb | | Ni | | Sr | | Sn | | V | | Zn | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | |
| | | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet |
| ***Total metals/metalloids **** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1-S | Surface (0.3) | 801 | 17 | 0.9 | 1.3 | 11 | 11 | <0.2 | <0.2 | 1.2 | <0.5 | 0.5 | <0.2 | 2 | <1 | 920 | 29 | <0.1 | <0.1 | <0.2 | <0.2 | 1.4 | <0.5 | 4,300 | 6,200 | <5 | <5 | 3.7 | 2.9 | <5 | <5 |
| M1-D | Bottom (6.3) | 432 | 288 | 1.3 | 1.1 | 8 | 8 | <0.2 | <0.2 | 0.5 | 0.7 | 0.3 | 0.3 | 4 | <1 | 473 | 360 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 1 | 6,390 | 6,640 | <5 | <5 | 2.1 | 3.1 | 5 | <5 |
| M2-S | Surface (0.3) | 53 | 10 | 0.7 | 2.1 | 11 | 11 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 1 | <1 | 67 | 20 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 4,090 | 6,730 | <5 | <5 | 1.1 | 2.7 | <5 | <5 |
| M2-D | Bottom (16.6) | 394 | <5 | 1.5 | 2 | 6 | 7 | <0.2 | <0.2 | <0.5 | <0.5 | 0.2 | <0.2 | 2 | <1 | 429 | 12 | <0.1 | <0.1 | 0.4 | <0.2 | 0.5 | <0.5 | 7,470 | 6,800 | <5 | <5 | 1.9 | 2.6 | <5 | <5 |
| M3-S | Surface (0.3) | 39 | 11 | 0.8 | 1.1 | 10 | 9 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 65 | 23 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 3,850 | 5,630 | <5 | <5 | 0.9 | 2.4 | <5 | <5 |
| M3-M | Middle (13.1) | 19 | <5 | 1.8 | 1.6 | 5 | 7 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 33 | 9 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,050 | 6,800 | <5 | <5 | <0.5 | 2.3 | <5 | <5 |
| M3-D | Bottom (27.4) | 65 | <5 | 1.8 | 1 | 5 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 95 | 24 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 0.8 | 7,860 | 7,020 | <5 | <5 | 0.8 | 2.5 | <5 | <5 |
| M4-S | Surface (0.3) | 9 | 34 | 0.9 | 0.9 | 11 | 16 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 2 | <1 | 15 | 50 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 4,300 | 5,370 | <5 | <5 | 0.6 | 2.8 | <5 | <5 |
| M4-M | Middle (13.0) | 25 | <5 | 0.6 | 1.3 | 7 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 2 | <1 | 46 | 60 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 4,600 | 6,810 | <5 | <5 | <0.5 | 2.9 | <5 | <5 |
| M4-D | Bottom (27.5) | 137 | 19 | 1.7 | 1.7 | 4 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 174 | 42 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,160 | 6,840 | <5 | <5 | 0.9 | 3 | <5 | <5 |
| M5-S | Surface (0.3) | 25 | 5 | <0.5 | 1.5 | 7 | 11 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 104 | 15 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 4,490 | 6,080 | <5 | <5 | <0.5 | 3 | <5 | <5 |
| M5-D | Bottom (8.9) | 62 | 34 | 1.3 | 1.3 | 7 | 7 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 93 | 65 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 6,390 | 6,540 | <5 | <5 | <0.5 | 3.1 | <5 | <5 |
| M6-S | Surface (0.3) | 36 | 27 | 0.7 | 2.1 | 11 | 13 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 2 | <1 | 50 | 45 | <0.1 | <0.1 | <0.2 | 0.3 | <0.5 | <0.5 | 4,310 | 5,840 | <5 | <5 | 0.9 | 5.4 | <5 | <5 |
| M6-D | Bottom (12.3) | 487 | 16 | 1.4 | 1.4 | 6 | 8 | <0.2 | <0.2 | 0.7 | <0.5 | 0.4 | <0.2 | <1 | <1 | 591 | 32 | <0.1 | <0.1 | <0.2 | <0.2 | 0.9 | <0.5 | 7,000 | 6,760 | <5 | <5 | 1.5 | 3.4 | <5 | <5 |
| M7-S | Surface (0.3) | 150 | 25 | 0.7 | 1.4 | 10 | 8 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 198 | 41 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 4,260 | 6,220 | <5 | <5 | 1.1 | 2 | <5 | <5 |
| M7-D | Bottom (7.5) | 116 | 163 | 1 | 1.6 | 7 | 8 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 162 | 240 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 5,920 | 6,870 | <5 | <5 | 0.6 | 2.9 | <5 | <5 |
| M8-S | Surface (0.3) | 37 | <5 | 0.8 | 1.9 | 11 | 8 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 46 | 12 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 4,380 | 6,730 | <5 | <5 | 0.6 | 4.2 | 13 | <5 |
| M8-D | Bottom (10.9) | 98 | 115 | 1.6 | 1.4 | 8 | 8 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 1 | <1 | 135 | 148 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 0.7 | 7,770 | 7,040 | <5 | <5 | 0.7 | 3.8 | <5 | <5 |
| M9-S | Surface (0.3) | 153 | 13 | <0.5 | 1.2 | 10 | 11 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 230 | 29 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 2,860 | 6,100 | <5 | <5 | 1.2 | 2.4 | <5 | <5 |
| M9-M | Middle (13.1) | 8 | <5 | 1.4 | 1.3 | 5 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 2 | <1 | 25 | 13 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 6,850 | 6,650 | <5 | <5 | <0.5 | 2.5 | <5 | <5 |
| M9-D | Bottom (26.4) | 23 | <5 | 1.4 | 1.5 | 4 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 2 | <1 | 44 | 12 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,300 | 6,720 | <5 | <5 | <0.5 | 2.4 | <5 | <5 |
| M10-S | Surface (0.3) | 14 | 12 | <0.5 | 1.4 | 11 | 11 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 28 | 89 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 3,970 | 5,990 | <5 | <5 | 1 | 2.8 | <5 | <5 |
| M10-D | Bottom (21.1) | 72 | <5 | 1.5 | 1.5 | 5 | 7 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 2 | <1 | 104 | 13 | <0.1 | 0.2 | <0.2 | <0.2 | <0.5 | <0.5 | 7,170 | 6,720 | <5 | <5 | 0.9 | 2.5 | <5 | <5 |
| M11-S | Surface (0.3) | 104 | 10 | 0.7 | 1.6 | 11 | 11 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 137 | 19 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 4,120 | 6,450 | <5 | <5 | 1.3 | 2.7 | 26 | <5 |
| M11-M | Middle (13.2) | 19 | <5 | 1.8 | 2 | 4 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 33 | 9 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,080 | 7,480 | <5 | <5 | <0.5 | 2.8 | <5 | <5 |
| M11-D | Bottom (26.7) | 411 | <5 | 2 | 1.8 | 5 | 6 | <0.2 | <0.2 | 0.6 | <0.5 | 0.3 | <0.2 | <1 | <1 | 547 | 10 | <0.1 | <0.1 | <0.2 | <0.2 | 0.6 | <0.5 | 7,080 | 7,360 | <5 | <5 | 1.3 | 2.5 | <5 | <5 |
| M12-S | Surface (0.3) | 25 | 18 | 0.8 | 1.2 | 11 | 17 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 1 | <1 | 33 | 41 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 1 | 4,360 | 5,280 | <5 | <5 | 1 | 2.8 | <5 | <5 |
| M12-M | Middle (12.1) | 41 | <5 | 1.5 | 1.5 | 5 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 62 | 12 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 1.7 | 6,940 | 6,790 | <5 | <5 | 0.6 | 3.1 | <5 | <5 |
| M12-D | Bottom (24.8) | 120 | <5 | 1.6 | 1.6 | 5 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 209 | 10 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 0.8 | 7,750 | 6,840 | <5 | <5 | 0.6 | 2.7 | <5 | <5 |
| M45-S | Surface (0.3) | - | 3,620 | - | 0.7 | - | 23 | - | <0.2 | - | 5.2 | - | 2 | - | 6 | - | 5,610 | - | <0.1 | - | 1.5 | - | 5.6 | - | 310 | - | <5 | - | 12.9 | - | 10 |
| M45-D | Bottom (7.2) | - | 2,990 | - | 0.8 | - | 38 | - | <0.2 | - | 4.5 | - | 1.9 | - | 4 | - | 5,020 | - | <0.1 | - | 1.3 | - | 4.8 | - | 995 | - | <5 | - | 13 | - | 9 |
| M46-S | Surface (0.3) | - | 73 | - | 1.6 | - | 13 | - | <0.2 | - | <0.5 | - | <0.2 | - | <1 | - | 95 | - | <0.1 | - | <0.2 | - | <0.5 | - | 5,560 | - | <5 | - | 2.8 | - | <5 |
| M46-M | Middle (3.3) | - | 31 | - | 1.1 | - | 12 | - | <0.2 | - | <0.5 | - | <0.2 | - | <1 | - | 42 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,130 | - | <5 | - | 2.1 | - | <5 |
| M46-D | Bottom (6.8) | - | 406 | - | 1.4 | - | 8 | - | <0.2 | - | <0.5 | - | 0.3 | - | <1 | - | 566 | - | <0.1 | - | <0.2 | - | 1 | - | 6,460 | - | <5 | - | 3.9 | - | <5 |
| ***LORs*** | | *5* | | *0.5* | | *1* | | *0.2* | | *0.5* | | *0.2* | | *1* | | *5* | | *0.1* | | *0.2* | | *0.5* | | *10* | | *5* | | *0.5* | | *5* | |

*Water quality guideline values for metals/metalloids are applicable to dissolved (filtered <0.45 µm) concentrations hence are not shown in this table

**Table 6-6 Orokolo Bay – Dissolved Metals/Metalloids Data (Dry Season and Wet Season)**

| Site | Depth Profile (m) | Al | | As | | Ba | | Cd | | Cr | | Co | | Cu | | Fe | | Hg | | Pb | | Ni | | Sr | | Sn | | V | | Zn | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | |
| | | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet |
| ***Dissolved metals/metalloids*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M1-S | Surface (0.3) | 6 | <5 | 0.8 | 1.1 | 11 | 11 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 4,400 | 6,110 | <5 | <5 | 2.5 | 2 | <5 | 5 |
| M1-D | Bottom (6.3) | 7 | 12 | 1 | 1 | 7 | 8 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | 0.2 | <1 | <1 | <5 | 6 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 0.6 | 6,790 | 6,380 | <5 | <5 | 2.1 | 2.2 | <5 | <5 |
| M2-S | Surface (0.3) | 6 | <5 | 0.8 | 1.1 | 11 | 12 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 1.4 | 4,420 | 5,940 | <5 | <5 | 2.2 | 1.6 | <5 | <5 |
| M2-D | Bottom (16.6) | 9 | <5 | 1.4 | 1.1 | 5 | 7 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,450 | 6,550 | <5 | <5 | 1.8 | 1.7 | <5 | <5 |
| M3-S | Surface (0.3) | <5 | <5 | 0.6 | 1 | 10 | 11 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | 1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 4,170 | 6,020 | <5 | <5 | 2.2 | 1.8 | <5 | <5 |
| M3-M | Middle (13.1) | <5 | <5 | 1.7 | 1.2 | 5 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,690 | 6,650 | <5 | <5 | 1.6 | 1.6 | <5 | <5 |
| M3-D | Bottom (27.4) | <5 | <5 | 1.6 | 1.4 | 4 | 5 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,450 | 6,990 | <5 | <5 | 1.7 | 1.6 | <5 | <5 |
| M4-S | Surface (0.3) | <5 | <5 | 0.7 | 0.9 | 10 | 20 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 4,470 | 4,710 | <5 | <5 | 2.2 | 2.2 | <5 | <5 |
| M4-M | Middle (13.0) | <5 | <5 | 0.8 | 1.1 | 8 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 5,050 | 6,980 | <5 | <5 | 1.9 | 1.8 | <5 | <5 |
| M4-D | Bottom (27.5) | <5 | <5 | 1.6 | 1.3 | 5 | 7 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,760 | 7,030 | <5 | <5 | 1.7 | 1.6 | <5 | <5 |
| M5-S | Surface (0.3) | <5 | <5 | 0.7 | 1.3 | 10 | 11 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 4,630 | 6,320 | <5 | <5 | 2.2 | 1.8 | <5 | <5 |
| M5-D | Bottom (8.9) | 5 | <5 | 1.4 | 1.5 | 6 | 7 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 6,990 | 7,040 | <5 | <5 | 1.7 | 1.8 | <5 | 11 |
| M6-S | Surface (0.3) | <5 | <5 | 0.7 | 1 | 11 | 13 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | 2 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | 0.3 | <0.5 | <0.5 | 4,520 | 5,620 | <5 | <5 | 2.3 | 1.8 | <5 | 6 |
| M6-D | Bottom (12.3) | 8 | <5 | 1.5 | 1.2 | 6 | 7 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | 0.2 | <0.5 | <0.5 | 7,520 | 6,560 | <5 | <5 | 2.1 | 1.6 | <5 | <5 |
| M7-S | Surface (0.3) | 6 | <5 | 0.8 | 1 | 10 | 8 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 4,620 | 6,610 | <5 | <5 | 1.9 | 1.6 | <5 | <5 |
| M7-D | Bottom (7.5) | 7 | <5 | 0.8 | 1.2 | 6 | 8 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 5,850 | 6,780 | <5 | <5 | 1.6 | 1.7 | <5 | <5 |
| M8-S | Surface (0.3) | 7 | <5 | 0.7 | 0.9 | 10 | 8 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | 1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 4,640 | 6,330 | <5 | <5 | 2.2 | 1.6 | <5 | <5 |
| M8-D | Bottom (10.9) | 5 | <5 | 1.4 | 1.4 | 6 | 7 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | 1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 6,960 | 6,740 | <5 | <5 | 1.9 | 2.1 | <5 | <5 |
| M9-S | Surface (0.3) | 5 | <5 | <0.5 | 1.2 | 9 | 10 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | 1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 3,070 | 6,290 | <5 | <5 | 2.2 | 1.8 | <5 | <5 |
| M9-M | Middle (13.1) | <5 | <5 | 1.6 | 1.4 | 5 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,350 | 6,740 | <5 | <5 | 1.7 | 1.5 | <5 | <5 |
| M9-D | Bottom (26.4) | <5 | <5 | 1.3 | 1.5 | 4 | 5 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,740 | 7,060 | <5 | <5 | 2 | 1.7 | <5 | <5 |
| M10-S | Surface (0.3) | <5 | <5 | 0.8 | 1.1 | 11 | 11 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 4,210 | 6,160 | <5 | <5 | 2.3 | 2.1 | <5 | <5 |
| M10-D | Bottom (21.1) | 5 | <5 | 1.3 | 1.2 | 5 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | 1 | <5 | <5 | <0.1 | 0.2 | <0.2 | <0.2 | <0.5 | <0.5 | 7,670 | 6,940 | <5 | <5 | 1.8 | 1.6 | <5 | <5 |
| M11-S | Surface (0.3) | 6 | <5 | 0.9 | 0.9 | 11 | 11 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | 1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 4,430 | 5,960 | <5 | <5 | 2.3 | 1.7 | <5 | <5 |
| M11-M | Middle (13.2) | 5 | <5 | 1.4 | 1.3 | 5 | 6 | <0.2 | <0.2 | <0.5 | 0.9 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,540 | 6,770 | <5 | <5 | 1.8 | 1.6 | <5 | <5 |
| M11-D | Bottom (26.7) | 8 | <5 | 1.3 | 1.4 | 5 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,600 | 6,940 | <5 | <5 | 1.8 | 1.5 | <5 | <5 |
| M12-S | Surface (0.3) | <5 | <5 | 0.7 | 0.7 | 11 | 18 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 4,540 | 5,380 | <5 | <5 | 2.3 | 2.2 | <5 | <5 |
| M12-M | Middle (12.1) | 6 | <5 | 1.6 | 1.3 | 5 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | 1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,490 | 6,800 | <5 | <5 | 1.7 | 1.7 | <5 | 6 |
| M12-D | Bottom (24.8) | 6 | <5 | 1.4 | 1.3 | 5 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,740 | 7,100 | <5 | <5 | 1.9 | 1.7 | <5 | <5 |
| M45-S | Surface (0.3) | - | 18 | - | <0.5 | - | 14 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | 14 | - | <0.1 | - | <0.2 | - | <0.5 | - | 250 | - | <5 | - | 2.5 | - | <5 |
| M45-D | Bottom (7.2) | - | 13 | - | <0.5 | - | 34 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | 8 | - | <0.1 | - | <0.2 | - | <0.5 | - | 911 | - | <5 | - | 2.6 | - | <5 |
| M46-S | Surface (0.3) | - | 6 | - | 1.1 | - | 13 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | <5 | - | <0.1 | - | <0.2 | - | <0.5 | - | 5,380 | - | <5 | - | 2 | - | <5 |
| M46-M | Middle (3.3) | - | <5 | - | 1.8 | - | 11 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | 25 | - | <0.1 | - | <0.2 | - | <0.5 | - | 5,930 | - | <5 | - | 2.7 | - | <5 |
| M46-D | Bottom (6.8) | - | 10 | - | 1 | - | 8 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | <5 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,540 | - | <5 | - | 1.6 | - | <5 |
| ***Guideline values (marine water)*** | ***PNG ER*** | - | | *50* | | *1,000* | | *1.0* | | *10* | | *0.2* | | *30* | | *1,000* | | *0.2* | | *4* | | *1,000* | | - | | *500* | | - | | *5,000* | |
| | ***ANZECC*** | - | | - | | - | | *0.7* | | *4.4* | | *1.0* | | *1.3* | | - | | *0.1* | | *4.4* | | *7* | | - | | - | | *100* | | *15* | |
| ***LORs*** | | *5* | | *0.5* | | *1* | | *0.2* | | *0.5* | | *0.2* | | *1* | | *5* | | *0.1* | | *0.2* | | *0.5* | | *10* | | *5* | | *0.5* | | *5* | |

Note: Yellow highlighted cells indicate exceedance of the ANZECC guideline values, while orange highlighted cells indicate exceedance of the PNG ER guideline values.
* WQOs/guideline values for metals/metalloids are relevant to *dissolved* (filtered <0.45 µm) concentrations only

**Table 6-7 Offshore Export Pipeline Corridor – Metals/Metalloids Data (Dry Season and Wet Season)**

| Site | Depth Profile (m) | Al | | As | | Ba | | Cd | | Cr | | Co | | Cu | | Fe | | Hg | | Pb | | Ni | | Sr | | Sn | | V | | Zn | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | |
| | | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet |
| ***Total metals/metalloids **** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M25-S | Surface (0.3) | 9 | 48 | 1.8 | 1.4 | 5 | 11 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 3 | <1 | 15 | 81 | <0.1 | <0.1 | <0.2 | <0.2 | 0.8 | <0.5 | 7,120 | 5,630 | <5 | <5 | 1.3 | 3.4 | <5 | <5 |
| M25-M | Middle (11.9) | 45 | <5 | 1.8 | 1.9 | 5 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 3 | <1 | 69 | 12 | <0.1 | <0.1 | <0.2 | <0.2 | 1.4 | <0.5 | 7,150 | 7,160 | <5 | <5 | 1.6 | 2.7 | <5 | <5 |
| M25-D | Bottom (24.6) | 476 | <5 | 2.2 | 2.2 | 5 | 6 | <0.2 | <0.2 | 1 | <0.5 | 0.4 | <0.2 | 2 | <1 | 799 | 7 | <0.1 | <0.1 | <0.2 | <0.2 | 1.6 | <0.5 | 7,190 | 7,310 | <5 | <5 | 3 | 3.1 | <5 | <5 |
| M31-S | Surface (0.3) | 30 | 8 | 1.9 | 1.9 | 5 | 9 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 2 | <1 | 51 | 18 | <0.1 | <0.1 | <0.2 | <0.2 | 0.7 | <0.5 | 7,040 | 5,960 | <5 | <5 | 1.6 | 2.5 | <5 | <5 |
| M31-M | Middle (26.0) | 21 | <5 | 1.8 | 2 | 5 | 5 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 2 | <1 | 43 | 12 | <0.1 | <0.1 | <0.2 | <0.2 | 0.6 | <0.5 | 7,150 | 7,170 | <5 | <5 | 1.4 | 2.5 | <5 | <5 |
| M31-D | Bottom (53.8) | 37 | 17 | 2 | 2.3 | 4 | 4 | <0.2 | <0.2 | <0.5 | <0.5 | 0.3 | <0.2 | 2 | <1 | 66 | 41 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 0.6 | 7,240 | 7,650 | <5 | <5 | 1.4 | 2.7 | <5 | <5 |
| M37-S | Surface (0.3) | <5 | 11 | 1.9 | 1.5 | 5 | 10 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 1 | <1 | 42 | 34 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 0.8 | 7,190 | 6,320 | <5 | <5 | 1.3 | 4.7 | <5 | <5 |
| M37-M | Middle (23.0) | <5 | <5 | 1.9 | 1.5 | 5 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 1 | <1 | 17 | 10 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 0.9 | 7,210 | 7,380 | <5 | <5 | 1.2 | 3.4 | <5 | <5 |
| M37-D | Bottom (45.1) | 15 | <5 | 1.9 | 2.6 | 4 | 7 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 1 | <1 | 37 | 10 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 0.6 | 7,170 | 7,730 | <5 | <5 | 1.2 | 3.2 | <5 | <5 |
| M43-S | Surface (0.3) | 29 | 39 | 1.8 | 2 | 6 | 10 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 1 | <1 | 49 | 54 | <0.1 | <0.1 | <0.2 | <0.2 | 0.7 | 0.5 | 7,040 | 6,660 | <5 | <5 | 1.3 | 3.6 | <5 | <5 |
| M43-M | Middle (20.7) | 18 | <5 | 2 | 1.9 | 5 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 1 | <1 | 33 | 13 | <0.1 | <0.1 | <0.2 | <0.2 | 1.6 | <0.5 | 7,160 | 7,610 | <5 | <5 | 1.2 | 2.8 | <5 | <5 |
| M43-D | Bottom (43.8) | 71 | <5 | 2 | 1.7 | 5 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 1 | <1 | 132 | 12 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,170 | 7,920 | <5 | <5 | 1.5 | 2.6 | <5 | <5 |
| ***Dissolved metals/metalloids*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M25-S | Surface (0.3) | <5 | <5 | 1.5 | 0.9 | 5 | 11 | <0.2 | <0.2 | <0.5 | 0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,330 | 5,180 | <5 | <5 | 2.4 | 1.8 | <5 | <5 |
| M25-M | Middle (11.9) | <5 | <5 | 1.5 | 1.4 | 5 | 6 | <0.2 | <0.2 | <0.5 | 0.9 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 0.6 | 7,340 | 6,670 | <5 | <5 | 1.7 | 1.8 | <5 | <5 |
| M25-D | Bottom (24.6) | <5 | <5 | 1.6 | 1.4 | 4 | 6 | <0.2 | <0.2 | <0.5 | 1.6 | <0.2 | <0.1 | <1 | <1 | 21 | 11 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 0.7 | 7,440 | 6,800 | <5 | <5 | 1.7 | 1.6 | <5 | <5 |
| M31-S | Surface (0.3) | 10 | <5 | 1.6 | 0.8 | 5 | 10 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | 14 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,420 | 5,570 | <5 | <5 | 1.8 | 1.9 | <5 | 8 |
| M31-M | Middle (26.0) | <5 | <5 | 1.6 | 1.2 | 4 | 5 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | 6 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,460 | 6,890 | <5 | <5 | 1.6 | 1.8 | <5 | <5 |
| M31-D | Bottom (53.8) | <5 | <5 | 1.6 | 1.6 | 4 | 4 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | 8 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,400 | 7,410 | <5 | <5 | 1.5 | 1.8 | <5 | <5 |
| M37-S | Surface (0.3) | <5 | <5 | 1.4 | 1 | 4 | 9 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,430 | 6,040 | <5 | <5 | 1.1 | 1.8 | <5 | <5 |
| M37-M | Middle (23.0) | <5 | <5 | 1.4 | 1.2 | 4 | 5 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 * | <5 | 13 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 0.9 | 7,510 | 7,200 | <5 | <5 | 0.9 | 1.6 | <5 | <5 |
| M37-D | Bottom (45.1) | <5 | <5 | 1.5 | 1.4 | 4 | 5 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,550 | 7,140 | <5 | <5 | 1.4 | 1.8 | <5 | <5 |
| M43-S | Surface (0.3) | 26 | <5 | 1.4 | 1.2 | 5 | 8 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 0.6 | 7,450 | 6,070 | <5 | <5 | 1.5 | 1.7 | <5 | <5 |
| M43-M | Middle (20.7) | <5 | <5 | 1.5 | 1.6 | 4 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,580 | 7,000 | <5 | <5 | 1.1 | 1.9 | <5 | <5 |
| M43-D | Bottom (43.8) | <5 | <5 | 1.6 | 1.6 | 4 | 5 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,660 | 7,350 | <5 | <5 | 1.2 | 1.7 | <5 | <5 |
| ***Guideline values (marine water)*** | ***PNG ER*** | - | | *50* | | *1,000* | | *1.0* | | *10* | | *0.2* | | *30* | | *1,000* | | *0.2* | | *4* | | *1,000* | | - | | *500* | | - | | *5,000* | |
| | ***ANZECC*** | - | | - | | - | | *0.7* | | *4.4* | | *1.0* | | *1.3* | | - | | *0.1* | | *4.4* | | *7* | | - | | - | | *100* | | *15* | |
| ***LORs*** | | *5* | | *0.5* | | *1* | | *0.2* | | *0.5* | | *0.2* | | *1* | | *5* | | *0.1* | | *0.2* | | *0.5* | | *10* | | *5* | | *0.5* | | *5* | |

Note: Yellow highlighted cells indicate exceedance of the ANZECC guideline values, while orange highlighted cells indicate exceedance of the PNG ER guideline values.

* WQOs/guideline values for metals/metalloids are relevant to *dissolved* (filtered <0.45 µm) concentrations only

** Dissolved copper concentration for M37-M is 10 µg/L in the laboratory data in Appendix C, however the total copper concentration for this site is <1 µg/L. Therefore, dissolve concentration is assumed to be <1 µg/L.

**Table 6-8 Caution Bay – Metals/Metalloids Data (Dry Season and Wet Season)**

| Site | Depth Profile (m) | Al | | As | | Ba | | Cd | | Cr | | Co | | Cu | | Fe | | Hg | | Pb | | Ni | | Sr | | Sn | | V | | Zn | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | |
| | | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet |
| ***Total metals/metalloids **** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M13-S | Surface (0.3) | 45 | 28 | 1.8 | 1.6 | 6 | 10 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 67 | 55 | <0.1 | <0.1 | <0.2 | <0.2 | 0.6 | <0.5 | 7,030 | 6,260 | <5 | <5 | 1.4 | 2.6 | <5 | <5 |
| M13-M | Middle (11.0) | 11 | 10 | 1.9 | 1.6 | 5 | 10 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 26 | 21 | <0.1 | <0.1 | <0.2 | <0.2 | 0.6 | <0.5 | 7,120 | 6,570 | <5 | <5 | 1 | 2.7 | <5 | <5 |
| M13-D | Bottom (22.8) | 19 | <5 | 1.9 | 1.5 | 5 | 8 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 48 | 19 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,180 | 7,200 | <5 | <5 | 1.2 | 2.8 | <5 | <5 |
| M15-S | Surface (0.3) | - | 37 | - | 1.5 | - | 10 | - | <0.2 | - | <0.5 | - | <0.2 | - | <1 | - | 69 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,220 | - | <5 | - | 2.8 | - | <5 |
| M15-M | Middle (15.2) | - | 16 | - | 1.6 | - | 9 | - | <0.2 | - | <0.5 | - | <0.2 | - | <1 | - | 34 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,670 | - | <5 | - | 2.6 | - | <5 |
| M15-D | Bottom (30.7) | - | 12 | - | 1.5 | - | 7 | - | <0.2 | - | <0.5 | - | <0.2 | - | <1 | - | 30 | - | <0.1 | - | <0.2 | - | <0.5 | - | 7,320 | - | <5 | - | 3 | - | <5 |
| M16-S | Surface (0.3) | - | 20 | - | 1.3 | - | 9 | - | <0.2 | - | <0.5 | - | <0.2 | - | <1 | - | 37 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,420 | - | <5 | - | 2.3 | - | <5 |
| M16-M | Middle (14.9) | - | 42 | - | 1.6 | - | 9 | - | <0.2 | - | <0.5 | - | <0.2 | - | <1 | - | 19 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,380 | - | <5 | - | 3.4 | - | <5 |
| M16-D | Bottom (31.2) | - | 13 | - | 1.3 | - | 8 | - | <0.2 | - | <0.5 | - | <0.2 | - | <1 | - | 31 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,240 | - | <5 | - | 1.1 | - | <5 |
| M17-S | Surface (0.3) | 30 | 17 | 1.9 | 2.2 | 5 | 9 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | 5 | <1 | 30 | 62 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 0.8 | 7,150 | 6,660 | <5 | <5 | 1 | 3.3 | <5 | <5 |
| M17-D | Bottom (28.7) | 34 | 6 | 1.9 | 1.4 | 5 | 9 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 67 | 19 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,150 | 6,730 | <5 | <5 | 1.1 | 2.4 | <5 | <5 |
| M19-S | Surface (0.3) | 11 | 6 | 1.9 | 1.4 | 5 | 8 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 25 | 19 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,150 | 6,160 | <5 | <5 | 1.2 | 1.6 | <5 | <5 |
| M19-D | Bottom (19.1) | 18 | 12 | 1.8 | 1.8 | 5 | 9 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 40 | 27 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,260 | 6,550 | <5 | <5 | 1.2 | 2.3 | <5 | <5 |
| M20-S | Surface (0.3) | - | 55 | - | 1.3 | - | 10 | - | <0.2 | - | <0.5 | - | <0.2 | - | 1 | - | 127 | - | <0.1 | - | 0.8 | - | 0.7 | - | 6,400 | - | <5 | - | 2.4 | - | <5 |
| M20-D | Bottom (7.4) | - | 18 | - | 1.8 | - | 12 | - | <0.2 | - | <0.5 | - | <0.2 | - | <1 | - | 66 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,300 | - | <5 | - | 2.2 | - | <5 |
| M21-S | Surface (0.3) | 13 | 11 | 1.7 | 1.5 | 5 | 9 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 30 | 25 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,240 | 6,220 | <5 | <5 | 1 | 2.2 | <5 | <5 |
| M21-D | Bottom (8.2) | 14 | 29 | 1.8 | 1.3 | 5 | 9 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 60 | 60 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,180 | 6,240 | <5 | <5 | 1.1 | 2.6 | <5 | <5 |
| M22-S | Surface (0.3) | 10 | 10 | 1.8 | 1.4 | 5 | 9 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <1 | 24 | 25 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,240 | 6,600 | <5 | <5 | 1.1 | 2.3 | <5 | <5 |
| M22-D | Bottom (10.5) | 14 | 18 | 1.8 | 2 | 5 | 9 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | 1 | 30 | 42 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | 0.7 | 7,180 | 6,630 | <5 | <5 | 1.1 | 2.6 | <5 | <5 |
| M23-S | Surface (0.3) | - | 9 | - | 1.3 | - | 9 | - | <0.2 | - | <0.5 | - | <0.2 | - | <1 | - | 32 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,720 | - | <5 | - | 2.5 | - | <5 |
| M23-D | Bottom (5.0) | - | 8 | - | 1.3 | - | 9 | - | <0.2 | - | <0.5 | - | <0.2 | - | <1 | - | 37 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,580 | - | <5 | - | 2.4 | - | 11 |
| M24-S | Surface (0.3) | - | 6 | - | 1.8 | - | 8 | - | <0.2 | - | <0.5 | - | <0.2 | - | <1 | - | 14 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,710 | - | <5 | - | 3 | - | <5 |
| M24-M | Middle (7.5) | - | <5 | - | 1.5 | - | 9 | - | <0.2 | - | <0.5 | - | <0.2 | - | <1 | - | 21 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,750 | - | <5 | - | 2.8 | - | <5 |
| M24-D | Bottom (15.9) | - | <5 | - | 1.4 | - | 9 | - | <0.2 | - | <0.5 | - | <0.2 | - | <1 | - | 16 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,860 | - | <5 | - | 2.4 | - | <5 |
| ***Dissolved metals/metalloids*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M13-S | Surface (0.3) | <5 | <5 | 1.5 | 1.2 | 6 | 8 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | 10 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,520 | 5,780 | <5 | <5 | 1.3 | 1.8 | <5 | <5 |
| M13-M | Middle (11.0) | <5 | <5 | 1.5 | 1.3 | 4 | 7 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | 5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,740 | 6,210 | <5 | <5 | 0.9 | 1.7 | <5 | <5 |
| M13-D | Bottom (22.8) | <5 | <5 | 1.4 | 1.3 | 4 | 6 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | 6 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,650 | 6,700 | <5 | <5 | 1 | 1.7 | <5 | <5 |
| M15-S | Surface (0.3) | - | <5 | - | 1.2 | - | 9 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | <5 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,020 | - | <5 | - | 1.7 | - | <5 |
| M15-M | Middle (15.2) | - | <5 | - | 1.3 | - | 7 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | <5 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,450 | - | <5 | - | 1.8 | - | <5 |
| M15-D | Bottom (30.7) | - | <5 | - | 1.4 | - | 6 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | <5 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,970 | - | <5 | - | 1.8 | - | <5 |
| M16-S | Surface (0.3) | - | <5 | - | 1.2 | - | 8 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | <5 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,180 | - | <5 | - | 1.7 | - | <5 |
| M16-M | Middle (14.9) | - | <5 | - | 1 | - | 8 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | <5 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,440 | - | <5 | - | 1.5 | - | <5 |
| M16-D | Bottom (31.2) | - | 5 | - | 1.1 | - | 7 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | <5 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,800 | - | <5 | - | 1.7 | - | <5 |
| M17-S | Surface (0.3) | <5 | <5 | 1.4 | 1 | 4 | 7 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | 13 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,740 | 6,460 | <5 | <5 | 1.8 | 1.7 | <5 | <5 |
| M17-D | Bottom (28.7) | <5 | <5 | 1.6 | 1.1 | 4 | 8 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | 12 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,850 | 6,380 | <5 | <5 | 1.3 | 1.8 | <5 | <5 |
| M19-S | Surface (0.3) | <5 | <5 | 1.4 | 1.2 | 4 | 7 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | <5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,770 | 6,340 | <5 | <5 | 1.1 | 1.8 | <5 | <5 |
| M19-D | Bottom (19.1) | <5 | <5 | 1.5 | 0.9 | 5 | 8 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | 6 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,850 | 6,520 | <5 | <5 | 1.3 | 1.8 | <5 | <5 |
| M20-S | Surface (0.3) | - | <5 | - | 1.1 | - | 9 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | <5 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,460 | - | <5 | - | 1.8 | - | <5 |
| M20-D | Bottom (7.4) | - | <5 | - | 1 | - | 8 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | <5 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,270 | - | <5 | - | 1.7 | - | <5 |
| M21-S | Surface (0.3) | <5 | <5 | 1.5 | 1.2 | 5 | 8 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | 5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,810 | 6,240 | <5 | <5 | 1.4 | 1.7 | <5 | <5 |

| Site | Depth Profile (m) | Al | | As | | Ba | | Cd | | Cr | | Co | | Cu | | Fe | | Hg | | Pb | | Ni | | Sr | | Sn | | V | | Zn | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | | µg/L | |
| | | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet |
| M21-D | Bottom (8.2) | <5 | <5 | 1.6 | 1.1 | 5 | 8 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | 5 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,780 | 6,240 | <5 | <5 | 1.4 | 1.8 | <5 | <5 |
| M22-S | Surface (0.3) | <5 | <5 | 1.5 | 1.3 | 5 | 7 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | 6 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,800 | 6,540 | <5 | <5 | 1.8 | 1.7 | <5 | <5 |
| M22-D | Bottom (10.5) | <5 | <5 | 1.6 | 1.2 | 5 | 7 | <0.2 | <0.2 | <0.5 | <0.5 | <0.2 | <0.1 | <1 | <1 | 7 | <5 | <0.1 | <0.1 | <0.2 | <0.2 | <0.5 | <0.5 | 7,820 | 6,300 | <5 | <5 | 2.2 | 1.8 | <5 | <5 |
| M23-S | Surface (0.3) | - | <5 | - | 1.3 | - | 7 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | <5 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,400 | - | <5 | - | 1.8 | - | 7 |
| M23-D | Bottom (5.0) | - | 15 | - | 1.3 | - | 8 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | <5 | - | <0.1 | - | 0.2 | - | 1 | - | 6,410 | - | <5 | - | 1.6 | - | 8 |
| M24-S | Surface (0.3) | - | <5 | - | 1.2 | - | 8 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | <5 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,470 | - | <5 | - | 1.8 | - | 9 |
| M24-M | Middle (7.5) | - | <5 | - | 1.2 | - | 8 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | <5 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,540 | - | <5 | - | 1.7 | - | <5 |
| M24-D | Bottom (15.9) | - | <5 | - | 1.4 | - | 8 | - | <0.2 | - | <0.5 | - | <0.1 | - | <1 | - | <5 | - | <0.1 | - | <0.2 | - | <0.5 | - | 6,440 | - | <5 | - | 1.8 | - | <5 |
| ***Guideline values (marine water)*** | ***PNG ER*** | *-* | | *50* | | *1,000* | | *1.0* | | *10* | | *0.2* | | *30* | | *1,000* | | *0.2* | | *4* | | *1,000* | | *-* | | *500* | | *-* | | *5,000* | |
| | ***ANZECC*** | *-* | | *-* | | *-* | | *0.7* | | *4.4* | | *1.0* | | *1.3* | | *-* | | *0.1* | | *4.4* | | *7* | | *-* | | *-* | | *100* | | *15* | |
| ***LORs*** | | *5* | | *0.5* | | *1* | | *0.2* | | *0.5* | | *0.2* | | *1* | | *5* | | *0.1* | | *0.2* | | *0.5* | | *10* | | *5* | | *0.5* | | *5* | |

Note: Yellow highlighted cells indicate exceedance of the ANZECC guideline values, while orange highlighted cells indicate exceedance of the PNG ER guideline values.

* WQOs/guideline values for metals/metalloids are relevant to *dissolved* (filtered <0.45 µm) concentrations only

### 6.2.3.2 Total Suspended Solids, Nutrients and Chlorophyll

Water samples collected in June-July 2016 and January 2017 were analyzed for a range of other parameters, including total suspended solids (TSS), chlorophyll-a and nutrients, including total nitrogen (TN), ammonia, nitrogen oxides ($NO_x$), total Kjeldahl nitrogen (TKN), total phosphorus (TP) and filterable reactive phosphorus (FRP). The results are presented in Table 6-9 to Table 6-11 and can be summarized as follows:

- TSS levels were below 20 mg/L at all sites during the dry season survey, with Orokolo Bay sites recording the highest TSS (up to 17 mg/L) while sites in Caution Bay recorded the lowest TSS (up to 7 mg/L). This dry season spatial pattern in TSS is similar to dry season spatial patterns in turbidity described in Section 6.2.1.
- TSS levels during the wet season survey were lower than the dry season survey, with most sites below 10 mg/L (except for Site M45 at the Purari River mouth which had TSS of 100 mg/L - noting this site was only sampled during the wet season). This seasonal pattern is similar to the turbidity data described in Section 6.2.1, which indicated lower turbidity values at all three areas during the wet season survey. Furthermore, the instrument deployment data (Section 6.2.2) also supports this, with turbidity values lower during the wet season survey relative to the dry season survey in Orokolo Bay.
- All sites had relatively low concentrations of nutrients, with most results below laboratory LORs during both surveys. The exception to this was ammonia, which generally had higher concentrations during the dry season survey at Orokolo Bay sites and lower concentrations during the dry season survey at Caution Bay and offshore export pipeline corridor sites. However, ammonia concentrations were all below the ANZECC toxicity-based guideline value (0.91 mg/L), except for surface waters at Site M13 in Caution Bay which had an ammonia concentration (0.96 mg/L) that slightly exceeded the ANZECC guideline value.
- Elevated levels of nutrients can result in nuisance algal growth (depending on a number of factors) however chlorophyll-a levels, which are indicative of phytoplankton growth, were low with most results being below or close to the laboratory limit of reporting (1 µg/L). Chlorophyll-a was mostly below the laboratory LOR at all sites during both surveys, except for four sites in Orokolo Bay which had concentrations up to 3 µg/L.

### 6.2.3.3 Hydrocarbons

The hydrocarbon data, including polynuclear aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPHs), total recoverable hydrocarbons (TRHs)[3] and benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN), are tabulated in Appendix A.

All results during the dry season and the wet season for all sites were below the laboratory LORs and below relevant ANZECC guideline values.

[3] TRH is the same as TPH except that the TRH carbon chain fractions are reported slightly differently to allow correlation with health screening levels in the National Environmental Protection (Assessment of Site Contamination) Amendment Measure 2013 (No 1) (NEPM)

**Table 6-9 Orokolo Bay – TSS, Nutrients and Chlorophyll Data (Dry Season and Wet Season)**

| Site | Depth Profile | TSS | | Chlorophyll-a | | Nutrients | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Ammonia | | NOx | | TKN | | TN | | TP | | FRP | |
| | | mg/L | | µg/L | | mg/L | | mg/L | | mg/L | | mg/L | | mg/L | | mg/L | |
| | | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet |
| M1-S | Surface (0.3) | 17 | <1 | 1 | <1 | 0.03 | <0.25 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | 0.06 | <0.05 | <0.01 | <0.01 |
| M1-D | Bottom (6.3) | 16 | 6 | 1 | 2 | 0.1 | <0.25 | 0.06 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | 0.06 | <0.05 | 0.01 | <0.01 |
| M2-S | Surface (0.3) | 5 | <1 | 3 | <1 | 0.02 | 0.88 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | 0.06 | <0.01 | <0.01 |
| M2-D | Bottom (16.6) | 11 | <1 | <1 | <1 | 0.19 | <0.25 | 0.07 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M3-S | Surface (0.3) | 3 | 1 | <1 | <1 | 0.02 | <0.25 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M3-M | Middle (13.1) | 1 | <1 | <1 | <1 | 0.14 | <0.25 | 0.1 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M3-D | Bottom (27.4) | 6 | <1 | <1 | <1 | 0.13 | <0.25 | 0.02 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | 0.23 | <0.01 | <0.01 |
| M4-S | Surface (0.3) | 2 | 2 | <1 | <1 | 0.04 | 0.66 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M4-M | Middle (13.0) | 2 | <1 | <1 | <1 | 0.06 | <0.25 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M4-D | Bottom (27.5) | 8 | <1 | <1 | <1 | 0.15 | <0.25 | 0.04 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M5-S | Surface (0.3) | 1 | <1 | <1 | <1 | 0.09 | 0.31 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | 0.06 | <0.05 | <0.01 | <0.01 |
| M5-D | Bottom (8.9) | 4 | 1 | <1 | 1 | 0.1 | 0.31 | 0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M6-S | Surface (0.3) | 6 | <1 | <1 | <1 | 0.03 | <0.25 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M6-D | Bottom (12.3) | 15 | 1 | <1 | <1 | 0.14 | <0.25 | 0.05 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | 0.01 | 0.02 |
| M7-S | Surface (0.3) | 4 | 1 | 2 | <1 | 0.03 | <0.25 | <0.01 | 0.03 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | 0.09 | <0.01 | <0.01 |
| M7-D | Bottom (7.5) | 9 | 4 | <1 | 2 | 0.07 | 0.33 | 0.07 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | 0.23 | 0.01 | <0.01 |
| M8-S | Surface (0.3) | 3 | <1 | <1 | <1 | 0.03 | 0.64 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | 0.06 | <0.05 | <0.01 | <0.01 |
| M8-D | Bottom (10.9) | 4 | 2 | <1 | <1 | 0.06 | 0.78 | 0.05 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | 0.06 | <0.05 | <0.01 | <0.01 |
| M9-S | Surface (0.3) | 5 | 1 | <1 | <1 | 0.03 | 0.72 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | 0.01 | <0.01 |
| M9-M | Middle (13.1) | 4 | <1 | <1 | <1 | 0.13 | 0.27 | <0.01 | 0.05 | <0.5 | <0.5 | <0.5 | <0.5 | 0.11 | <0.05 | <0.01 | <0.01 |
| M9-D | Bottom (26.4) | 4 | <1 | <1 | <1 | 0.13 | <0.25 | 0.03 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |

| Site | Depth Profile | TSS | | Chlorophyll-a | | Nutrients | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Ammonia | | NOx | | TKN | | TN | | TP | | FRP | |
| | | mg/L | | µg/L | | mg/L | | mg/L | | mg/L | | mg/L | | mg/L | | mg/L | |
| | | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet |
| M10-S | Surface (0.3) | 2 | <1 | 1 | <1 | 0.03 | <0.25 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M10-D | Bottom (21.1) | 6 | <1 | <1 | <1 | 0.12 | <0.25 | 0.06 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | 0.02 | <0.01 |
| M11-S | Surface (0.3) | 2 | 2 | 2 | <1 | 0.02 | <0.25 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | 0.01 | <0.01 |
| M11-M | Middle (13.2) | 5 | <1 | <1 | <1 | 0.12 | <0.25 | 0.03 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M11-D | Bottom (26.7) | 15 | 1 | <1 | <1 | 0.13 | 0.74 | 0.04 | <0.01 | 0.8 | <0.5 | 0.8 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M12-S | Surface (0.3) | 2 | 2 | <1 | <1 | 0.02 | <0.25 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M12-M | Middle (12.1) | 6 | <1 | <1 | <1 | 0.12 | <0.25 | 0.03 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M12-D | Bottom (24.8) | 9 | <1 | <1 | <1 | 0.16 | <0.25 | 0.04 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M45-S | Surface (0.3) | - | 100 | - | <1 | - | <0.25 | - | 0.04 | - | 0.3 | - | 0.3 | - | 0.13 | - | <0.01 |
| M45-B | Bottom (7.2) | - | 99 | - | <1 | - | <0.25 | - | 0.03 | - | 0.2 | - | 0.2 | - | 0.08 | - | 0.01 |
| M46-S | Surface (0.3) | - | 1 | - | <1 | - | <0.25 | - | <0.01 | - | <0.5 | - | <0.5 | - | 0.15 | - | <0.01 |
| M46-M | Middle (3.3) | - | <1 | - | <1 | - | <0.25 | - | <0.01 | - | <0.5 | - | <0.5 | - | <0.05 | - | <0.01 |
| M46-B | Bottom (6.8) | - | 10 | - | <1 | - | <0.25 | - | <0.01 | - | 0.5 | - | 0.5 | - | 0.26 | - | <0.01 |
| ***PNG ER*** | | - | | - | | - | | - | | - | | - | | - | | - | |
| ***ANZECC*** | | - | | - | | *0.91* | | - | | - | | - | | - | | - | |
| ***LORs*** | | *1* | | *1* | | *0.01 (dry season)*<br>*0.25 (wet season)* | | *0.01* | | *0.5* | | *0.5* | | *0.05* | | *0.01* | |

Note: Yellow highlighted cells indicate exceedance of the ANZECC guideline values, while orange highlighted cells indicate exceedance of the PNG ER guideline values.

**Table 6-10 Offshore Export Pipeline Corridor – TSS, Nutrients and Chlorophyll Data (Dry Season and Wet Season)**

| Site | Depth Profile | TSS | | Chlorophyll-a | | Nutrients | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Ammonia | | NOx | | TKN | | TN | | TP | | FRP | |
| | | mg/L | | mg/m3 | | mg/L | | mg/L | | mg/L | | mg/L | | mg/L | | mg/L | |
| | | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet |
| M25-S | Surface (0.3) | 2 | 1 | <1 | <1 | 0.14 | <0.25 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M25-M | Middle (11.9) | 6 | <1 | <1 | <1 | 0.13 | 0.86 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | 0.12 | <0.01 | <0.01 |
| M25-D | Bottom (24.6) | 14 | <1 | <1 | <1 | 0.15 | <0.25 | 0.03 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M31-S | Surface (0.3) | 8 | <1 | <1 | <1 | 0.06 | <0.25 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | 0.07 | <0.01 | <0.01 |
| M31-M | Middle (26.0) | 6 | <1 | <1 | <1 | 0.15 | <0.25 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M31-D | Bottom (53.8) | 1 | <1 | <1 | <1 | 0.15 | <0.25 | <0.01 | 0.02 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | 0.03 | <0.01 |
| M37-S | Surface (0.3) | 4 | <1 | <1 | <1 | 0.13 | 0.74 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | 0.08 | <0.01 | <0.01 |
| M37-M | Middle (23.0) | 6 | <1 | <1 | <1 | 0.14 | <0.25 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M37-D | Bottom (45.1) | 4 | <1 | <1 | <1 | 0.17 | <0.25 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M43-S | Surface (0.3) | 2 | 2 | <1 | <1 | 0.16 | <0.25 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M43-M | Middle (20.7) | 1 | <1 | <1 | <1 | 0.15 | <0.25 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | 0.13 | <0.01 | <0.01 |
| M43-D | Bottom (43.8) | 5 | <1 | <1 | <1 | 0.14 | 0.35 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | 0.07 | <0.01 | <0.01 |
| ***PNG ER*** | | - | | - | | - | | - | | - | | - | | - | | - | |
| ***ANZECC*** | | - | | - | | *0.91* | | - | | - | | - | | - | | - | |
| ***LORs*** | | *1* | | *1* | | *0.25* | | *0.01* | | *0.5* | | *0.5* | | *0.05* | | *0.01* | |

Note: Yellow highlighted cells indicate exceedance of the ANZECC guideline values, while orange highlighted cells indicate exceedance of the PNG ER guideline values.

**Table 6-11 Caution Bay – TSS, Nutrients and Chlorophyll Data (Dry Season and Wet Season)**

| Site | Depth Profile | TSS | | Chlorophyll-a | | Nutrients | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Ammonia | | NOx | | TKN | | TN | | TP | | FRP | |
| | | mg/L | | mg/m3 | | mg/L | | mg/L | | mg/L | | mg/L | | mg/L | | mg/L | |
| | | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet |
| M13-S | Surface (0.3) | 7 | <1 | <1 | <1 | 0.09 | 0.96 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | 0.05 | <0.01 | 0.02 |
| M13-M | Middle (11.0) | 1 | <1 | <1 | <1 | 0.09 | 0.26 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M13-D | Bottom (22.8) | 5 | <1 | <1 | <1 | 0.12 | 0.56 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M15-S | Surface (0.3) | - | <1 | - | <1 | - | 0.62 | - | <0.01 | - | <0.5 | - | <0.5 | - | 0.12 | - | <0.01 |
| M15-M | Middle (15.2) | - | <1 | - | 1 | - | 0.68 | - | <0.01 | - | <0.5 | - | <0.5 | - | <0.05 | - | <0.01 |
| M15-B | Bottom (30.7) | - | <1 | - | <1 | - | 0.59 | - | <0.01 | - | <0.5 | - | <0.5 | - | 0.06 | - | <0.01 |
| M16-S | Surface (0.3) | - | 1 | - | <1 | - | 0.58 | - | <0.01 | - | <0.5 | - | <0.5 | - | 0.32 | - | <0.01 |
| M16-M | Middle (14.9) | - | <1 | - | <1 | - | 0.61 | - | <0.01 | - | <0.5 | - | <0.5 | - | 0.42 | - | <0.01 |
| M16-B | Bottom (31.2) | - | <1 | - | <1 | - | 0.45 | - | <0.01 | - | <0.5 | - | <0.5 | - | 0.38 | - | <0.01 |
| M17-S | Surface (0.3) | 3 | 1 | <1 | <1 | 0.13 | 0.5 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | 0.06 | <0.01 | <0.01 |
| M17-D | Bottom (28.7) | 2 | 2 | <1 | <1 | 0.14 | 0.49 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | 0.09 | <0.01 | <0.01 |
| M19-S | Surface (0.3) | 7 | 2 | <1 | <1 | 0.11 | 0.48 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M19-D | Bottom (19.1) | 2 | <1 | <1 | <1 | 0.11 | 0.45 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | 0.49 | <0.01 | <0.01 |
| M20-S | Surface (0.3) | - | 1 | - | <1 | - | 0.49 | - | <0.01 | - | <0.5 | - | <0.5 | - | 0.05 | - | <0.01 |
| M20-B | Bottom (7.4) | - | <1 | - | <1 | - | 0.53 | - | <0.01 | - | <0.5 | - | <0.5 | - | <0.05 | - | <0.01 |
| M21-S | Surface (0.3) | 6 | <1 | <1 | <1 | 0.15 | 0.83 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M21-D | Bottom (8.2) | 4 | 2 | <1 | <1 | 0.12 | 0.42 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.05 | <0.01 | <0.01 |
| M22-S | Surface (0.3) | 7 | 2 | <1 | <1 | 0.11 | 0.71 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | 0.23 | <0.01 | <0.01 |
| M22-D | Bottom (10.5) | 2 | 2 | <1 | <1 | 0.1 | 0.77 | <0.01 | <0.01 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | 0.32 | <0.01 | <0.01 |
| M23-S | Surface (0.3) | - | <1 | - | <1 | - | 0.53 | - | <0.01 | - | <0.5 | - | <0.5 | - | 0.43 | - | 0.02 |
| M23-B | Bottom (5.0) | - | 2 | - | <1 | - | 0.62 | - | <0.01 | - | <0.5 | - | <0.5 | - | 0.08 | - | <0.01 |

| Site | Depth Profile | TSS | | Chlorophyll-a | | Nutrients | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Ammonia | | NOx | | TKN | | TN | | TP | | FRP | |
| | | mg/L | | mg/m3 | | mg/L | | mg/L | | mg/L | | mg/L | | mg/L | | mg/L | |
| | | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet | Dry | Wet |
| M24-S | Surface (0.3) | - | 2 | - | <1 | - | 0.63 | - | <0.01 | - | <0.5 | - | <0.5 | - | 0.23 | - | <0.01 |
| M24-M | Middle (7.5) | - | <1 | - | <1 | - | 0.62 | - | <0.01 | - | <0.5 | - | <0.5 | - | <0.05 | - | <0.01 |
| M24-B | Bottom (15.9) | - | 2 | - | <1 | - | 0.64 | - | <0.01 | - | <0.5 | - | <0.5 | - | <0.05 | - | <0.01 |
| ***PNG ER*** | | - | | - | | - | | - | | - | | - | | - | | - | |
| ***ANZECC*** | | - | | - | | *0.91* | | - | | - | | - | | - | | - | |
| ***LORs*** | | *1* | | *1* | | *0.25* | | *0.01* | | *0.5* | | *0.5* | | *0.05* | | *0.01* | |

Note: Yellow highlighted cells indicate exceedance of the ANZECC guideline values, while orange highlighted cells indicate exceedance of the PNG ER guideline values.

### 6.2.4 Comparison to Other Studies

As noted in Section 4.1, water quality studies have previously been undertaken in and adjacent to the study area. Only one of these studies (PNG LNG Project EIS) has provided marine water quality data that overlaps with the current study. Both the PNG LNG Project EIS and the Gulf LNG Project EIS, however, provide information relevant to characterizing the marine water quality baseline within the Gulf of Papua. What is clear from these previous studies, consistent with the current study, is that while marine water quality in the gulf is representative of marine water quality found in other tropical areas, there is significant influence to water quality in nearshore areas associated with the large river systems that discharge into the gulf. This was identified for both the Omati River (CNS, 2009) and for an assessment of the rivers flowing into Kerema Bay. This is consistent with the findings of the present study which has identified the significant influence of the Purari River on water quality in nearshore areas of Orokolo Bay adjacent to the delta (i.e. freshwater flows resulting in stratification).

In comparing the results of the June-July 2016 and January 2017 surveys to the sampling activities undertaken for the PNG LNG Project EIS (December 2007 and April 2008) the following observations can be made:

- TSS measured in Caution Bay for the PNG LNG EIS was significantly higher in the dry season (April 2008) compared to the wet season (December 2007) (i.e. 26 to 68 mg/L compared to 2 to 17 mg/L), although it was acknowledged that further sampling was required to further assess this seasonal difference (CNS, 2009). The results obtained from the April 2008 survey were considered to be contrary to the higher visibility noted by divers at that time (CNS, 2008b), hence there is some uncertainty associated with the TSS results for the April 2008 survey. The present study identified higher levels of TSS in the wet season (January 2017) compared with the dry season (June-July 2016), however the difference between seasons was minor with all results less than 8 mg/L.
- In situ parameters (turbidity, pH, EC, DO and temperature) measured at Caution Bay for the PNG LNG EIS were mostly similar to those measured during the present study. The key difference was the potential for more freshwater-dominated influences noted during the PNG LNG Project EIS, contributing to EC and salinity values lower than expected for nearshore marine waters (43,000-58,000 µS/cm and 27,880-34,000 mg/L, respectively) (CNS, 2009).
- Similar to the present study, metals and metalloids analyzed were all below the ANZECC and PNG ER guideline values.

### 6.2.5 Summary of Water Quality Conditions

**Orokolo Bay**

Water quality at Orokolo Bay is strongly influenced by freshwater discharges from the Purari River. The influence of these freshwater discharges is illustrated in the water quality profiling data which indicated lower EC and salinity (~35,000 µS/cm) in surface waters at monitoring sites in Orokolo Bay, compared to bottom waters in Orokolo Bay and other sites in Caution Bay and offshore export pipeline corridor (~55,000 µS/cm).

This stratification was more pronounced during the dry season survey relative to the wet season survey, possibly due to freshwater discharges from the Purari River and the calm conditions at the time of dry season sampling. These calm conditions are reflected in the dry season profiling data for

all three areas, which generally shows more consistent water quality conditions between sites during the dry season survey relative to the wet season survey, when greater variability was evident in the data.

The influence of Purari River discharges was greatest at the mouth, which had relatively fresh surface waters (~2,000 µS/cm) and saline bottom waters (~40,000 µS/cm). This indicates the presence of a salt wedge at the mouth of the Purari River. Furthermore, during the last few days of instrument deployment near the mouth in January 2017, the turbidity spiked from about 50 NTU up to about 450 NTU. Field observations indicated this spike was the result of a large slug of turbid water from rainfall in the Purari River catchment.

Previous studies (e.g. Saint-cast and Condie, 2006) have indicated that turbidity in Orokolo Bay generated from wind and wave driven resuspension is generally highest during the dry season, while turbidity generated by fluvial delivery of terrigenous sediment is highest during the wet season. The data from bottom-mounted instrument deployments supports this, with lower turbidity during calmer weather conditions and higher turbidity during periods of higher winds and rougher seas.

Turbidity and TSS levels were mostly lower during the dry season survey compared to the wet season survey. Turbidity levels were generally higher in Orokolo Bay compared to Caution Bay and the offshore export pipeline corridor. This pattern was also indicated in the TSS data, with higher TSS levels at Orokolo Bay (up to 17 mg/L) compared to Caution Bay (up to 7 mg/L) and offshore export pipeline corridor sites (up to 14 mg/L).

The water depth data from the deployed instruments indicates that the tidal range at Orokolo Bay is approximately 1 m during neap tide and approximately 2 m during spring tide.

Water temperatures in Orokolo Bay (28 to 30˚C) were slightly warmer compared to Caution Bay and the offshore export pipeline corridor sites (26 to 30˚C).

In terms of other water quality parameters, concentrations of nutrients, metals/metalloids and hydrocarbons in Orokolo Bay were found to be low during both the dry season and wet season surveys. The only exceedances of water quality guideline values were slightly elevated concentrations of dissolved copper at one site during the dry season survey and dissolved mercury at one site during the wet season survey.

**Offshore Export Pipeline Corridor**

Water quality along the pipeline corridor is characterized by low turbidity (<7 NTU) and TSS (<14 mg/L), pH around 8.0, and low concentrations of metals/metalloids and nutrients. Higher turbidity and TSS were generally found in bottom waters. The only exceedance of water quality guideline values for metals/metalloids was a slight exceedance of dissolved copper at one site during the wet season survey.

Water quality during both the dry season and wet season surveys was relatively consistent throughout the water column, with DO levels greater than 80% even at water depths greater than 50 m.

Electrical conductivity and salinity at sites along the offshore export pipeline corridor were consistent through the water column during the dry season survey, but lower in surface waters during the wet season survey. This indicates that wet season freshwater flows may have diluted the surface water layers (top 10 to 20 m) in the offshore marine areas at the time of sampling.

During the wet season survey, the four monitoring sites at the eastern extent of the pipeline route had slightly different water quality to other sites, with higher EC and pH values compared to other sites along the pipeline corridor.

**Caution Bay**

Caution Bay sites had lower turbidity and TSS, higher DO and nutrients, and lower concentrations of metals/metalloids than sites in Orokolo Bay and the offshore export pipeline corridor. This is expected to be due to the lack of significant freshwater inputs into Caution Bay and the area being less exposed to southeast trade winds.

Water quality at Caution Bay is characterized by relatively clear waters with low turbidity (<2 NTU) and TSS (<2 mg/L) during the dry season. Levels of turbidity (up to 8 NTU) and TSS (up to 7 mg/L) were higher during the wet season survey, consistent with previous studies conducted for the PNG LNG Project EIS which found a higher suspended sediment levels during the wet season than the dry season (CNS, 2008b).

DO levels were above 90% at all sites during both surveys. Caution Bay sites also had low concentrations of nutrients, metals/metalloids and hydrocarbons, with only one slight exceedance of water quality guideline values for ammonia.

## 6.3 Sediment Quality Conditions

### 6.3.1 Particle Size Distribution

Particle size distribution (PSD) data collected in surface sediments in June-July 2016 (dry season survey) are provided in Table 6-12 and in Figure 6-16. Samples from sites M45 and M46 were collected in January 2017 (wet season survey). Samples were not collected at Caution Bay due to risk from UXOs during the present survey but were taken as part of the PNG LNG Project EIS (CNS, 2008b). Appendix A shows plates of sediment samples.

The PSD data indicates that bed sediment composition (surface sediments) at monitoring sites in the study areas of Orokolo Bay and the offshore export pipeline corridor was predominantly silts and clays, with most sites having a proportion of silts and clays greater than 90%. The remaining proportion comprised sands (~5 to 10%). The exceptions to this were sites M7 and M45 in Orokolo Bay and Site M37 along the offshore export pipeline corridor, which had a much higher proportion of sands (55 to 66%). Site M45 at the Purari River mouth had the highest proportion of sand at 90%.

The PSD data obtained for Caution Bay for the PNG LNG Project EIS indicates that the substrate is predominantly comprised of sandy sediments. The exception is areas dominated by corals where sediments are characterized by larger particle size fractions associated with coral rubble and shell debris (CNS, 2009). Sediments within the (then) proposed shipping channel, near coastal mangrove habitat, and at Idihi Island were characterized by silt. This aligns with benthic habitat mapping data collected during the January 2017 survey – see Marine Biodiversity Baseline Report (BMT WBM, 2017c).

**Table 6-12 Particle Size Distribution for Orokolo Bay and Offshore Export Pipeline Corridor**

| Site | Clay (<2 µm) | Silt (2-60 µm) | Sand (0.06-2 mm) | Gravel (>2 mm) | Cobbles (>6 cm) |
|---|---|---|---|---|---|
| | % | % | % | % | % |
| **Orokolo Bay** | | | | | |
| M1 | 28 | 66 | 6 | <1 | <1 |
| M2 | 45 | 52 | 3 | <1 | <1 |
| M3 | 39 | 56 | 5 | <1 | <1 |
| M4 | 45 | 52 | 3 | <1 | <1 |
| M5 | 21 | 73 | 6 | <1 | <1 |
| M6 | 27 | 71 | 2 | <1 | <1 |
| M7 | 20 | 25 | 55 | <1 | <1 |
| M8 | 27 | 64 | 9 | <1 | <1 |
| M9 | 42 | 53 | 5 | <1 | <1 |
| M10 | 33 | 61 | 6 | <1 | <1 |
| M11 | 39 | 58 | 3 | <1 | <1 |
| M12 | 49 | 49 | 2 | <1 | <1 |
| M45^ | 6 | 3 | 91 | <1 | <1 |
| M46^ | 23 | 74 | 3 | <1 | <1 |
| **Offshore Export Pipeline Corridor** | | | | | |
| M25 | 40 | 56 | 4 | <1 | <1 |
| M31 | 52 | 43 | 5 | <1 | <1 |
| M37 | 22 | 12 | 66 | <1 | <1 |
| M43 | 41 | 55 | 4 | <1 | <1 |

^ Samples at M45 and M46 were collected in January 2017. Samples from all other sites were collected in June-July 2016

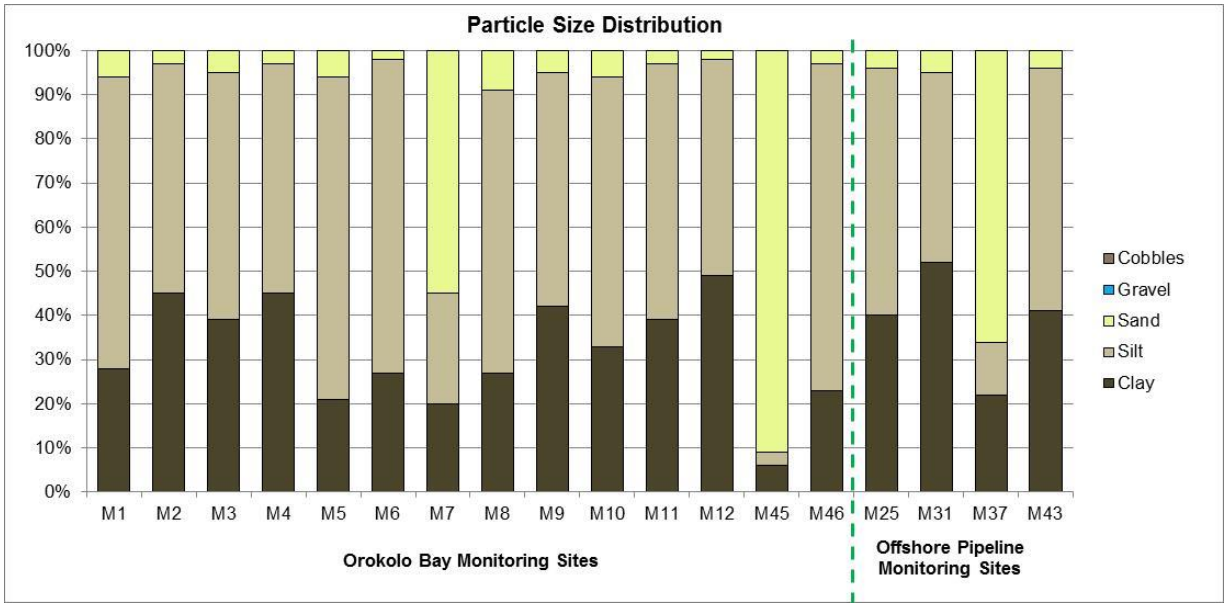



**Figure 6-16 Particle Size Distribution Data for Orokolo Bay and Offshore Export Pipeline Corridor Sites**

### 6.3.2 Metals and Metalloids

Metals/metalloids in sediment data collected in June-July 2016 (and January 2017 for sites M45 and M46) are presented in Table 6-13. These relate to sites at Orokolo Bay and the offshore export pipeline corridor.

Total metal/metalloid concentrations are compared to Simpson *et al.* (2013) sediment quality guidelines as detailed in Section 5.5. These sediment guidelines give a low value (SQGV), below which ecotoxicological effects are unlikely to occur and a high value (SQG-high), above which ecotoxicological effects are possible.

Data are also compared to criteria specified in Schedule 2 of the Marine Pollution (Sea Dumping) Regulation 2014 (PNG MPR). These criteria (which are similar to the Simpson *et al.* 2013 SQGVs) are for assessment of dredged material proposed to be placed at sea. Material that does not meet these criteria is considered to require further risk-based assessment to determine suitability for disposal at sea, or otherwise placed onshore.

Table 6-13 indicates that concentrations of metals/metalloids in sediment are relatively consistent between monitoring sites, with all concentrations below sediment quality guideline values. The exception to this is nickel, which exceeded the SQGV at all sites (however, all sites were lower than the SQG-High). However, it is not unusual for nickel concentrations in sediment in Papua New Guinea (and Australia) to exceed the guideline values, and the elevated nickel is likely attributable to naturally elevated background levels associated with geological origin.

Results for sites M7 and M45 at Orokolo Bay and Site M37 along the offshore export pipeline corridor near Yule Island are slightly different to other sites in that they had lower concentrations of some metals (e.g. Al, Cu, Fe and Ni), likely reflecting the lower proportion of fine-grained sediments at these sites (see Section 6.3.1). This reflects the tendency of trace metals/metalloids to bind more readily to finer sediment fractions than sands and gravels that are often dominated by silicates.

While no sediment sampling was undertaken as part of the present study at Caution Bay, sampling and analysis was conducted in this area as part of the PNG LNG Project EIS (CNS, 2008a; 2008b). These assessments identified the following:

- Elevated concentrations of nickel were recorded in sediment samples at Caution Bay, being close to or exceeding the ANZECC/ARMCANZ (2000) sediment guidelines at some sites.[4] This is similar to the findings of the present study at Orokolo Bay and the offshore export pipeline corridor where nickel exceeded the SQGV at all sites.
- All other metals/metalloids concentrations were within guideline limits.

[4] As the Simpson *et al.* (2013) updates were not in place at the time of the sampling for the PNG LNG Project EIS the ANZECC/ARMCANZ (2000) guidelines were adopted. For the parameters listed the only difference in guideline values is that the SQG-High for silver is 4 mg/kg in Simpson and 3.7 mg/kg in ANZECC.

**Table 6-13 Total Metals/metalloids in Sediment (mg/kg)**

| Site | Sb | Al | As | Ba | Be | Cd | Cr | Co | Cu | Fe | Pb | Mn | Hg | Mo | Ni | Se | Ag | Sr | Tl | Sn | V | Zn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Orokolo Bay** | | | | | | | | | | | | | | | | | | | | | | |
| M1 | <0.1 | 32,600 | 11 | 20 | 0.6 | <0.1 | 59.1 | 20 | 43.8 | 51,600 | 8 | 742 | <0.1 | 0.3 | 44.8 | <1 | <0.1 | 35 | <0.1 | <5 | 94 | 84.3 |
| M2 | <0.1 | 35,300 | 11 | 10 | 0.7 | <0.1 | 53.5 | 19 | 51.9 | 54,200 | 10.7 | 640 | <0.1 | 0.4 | 45.5 | <1 | <0.1 | 53 | <0.1 | <5 | 94 | 93.2 |
| M3 | 0.1 | 37,900 | 10 | 10 | 0.7 | <0.1 | 67.7 | 22 | 61.5 | 55,800 | 11.2 | 708 | <0.1 | 0.6 | 51.2 | <1 | 0.6 | 50 | <0.1 | <5 | 108 | 95.6 |
| M4 | <0.1 | 39,400 | 14 | 20 | 0.7 | <0.1 | 68.6 | 22 | 60.8 | 56,200 | 11.2 | 869 | <0.1 | 0.5 | 51.6 | <1 | 0.4 | 51 | <0.1 | <5 | 112 | 94.6 |
| M5 | <0.1 | 30,100 | 6 | 10 | 0.5 | <0.1 | 57.6 | 20 | 36.4 | 48,100 | 7.3 | 661 | <0.1 | 0.3 | 41.3 | <1 | <0.1 | 28 | <0.1 | <5 | 89 | 79.1 |
| M6 | <0.1 | 34,400 | 10 | 20 | 0.6 | <0.1 | 63.7 | 22 | 39.4 | 54,300 | 8.4 | 708 | <0.1 | 0.3 | 47.6 | <1 | 0.1 | 35 | <0.1 | <5 | 100 | 87.9 |
| M7 | <0.1 | 22,200 | 6 | 10 | 0.4 | <0.1 | 46.8 | 17 | 18.6 | 41,500 | 6 | 553 | <0.1 | 0.1 | 34.4 | <1 | <0.1 | 10 | <0.1 | <5 | 81 | 69 |
| M8 | <0.1 | 30,500 | 6 | 10 | 0.5 | <0.1 | 57.6 | 20 | 37 | 48,700 | 7.8 | 658 | <0.1 | 0.2 | 42.6 | <1 | <0.1 | 32 | <0.1 | <5 | 90 | 79.4 |
| M9 | 0.1 | 40,600 | 11 | 10 | 0.8 | <0.1 | 64.4 | 21 | 64.6 | 55,600 | 11.8 | 736 | <0.1 | 0.5 | 49.6 | <1 | 0.6 | 52 | <0.1 | <5 | 108 | 95.7 |
| M10 | <0.1 | 40,000 | 11 | 20 | 0.7 | <0.1 | 71 | 24 | 59.3 | 57,800 | 10.5 | 817 | <0.1 | 0.6 | 51.5 | <1 | 0.2 | 53 | <0.1 | <5 | 112 | 92.2 |
| M11 | <0.1 | 35,800 | 12 | 20 | 0.7 | <0.1 | 54.7 | 20 | 54.9 | 55,600 | 11.1 | 1,080 | <0.1 | 0.4 | 46.0 | <1 | <0.1 | 60 | <0.1 | <5 | 100 | 95.1 |
| M12 | <0.1 | 39,800 | 12 | 20 | 0.8 | <0.1 | 63 | 22 | 53.3 | 59,000 | 11.5 | 810 | <0.1 | 0.4 | 50.8 | <1 | <0.1 | 55 | <0.1 | <5 | 108 | 99.7 |
| M45^ | <0.1 | 20100 | 5 | 50 | 0.5 | <0.1 | 41.6 | 22.4 | 22.9 | 41400 | 8.7 | 621 | <0.1 | 0.2 | 39.8 | <1 | <0.1 | 51 | <0.1 | <5 | 84 | 66 |
| M46^ | 0.1 | 33400 | 10 | 30 | 0.7 | <0.1 | 56.6 | 21.1 | 53 | 55300 | 13.2 | 836 | <0.1 | 0.4 | 46.4 | <1 | <0.1 | 88 | <0.1 | <5 | 110 | 93.5 |
| **Offshore Export Pipeline Corridor** | | | | | | | | | | | | | | | | | | | | | | |
| M25 | 0.1 | 39,300 | 11 | 10 | 0.8 | <0.1 | 59.2 | 20 | 46.4 | 55,300 | 11.4 | 698 | <0.1 | 0.4 | 47.4 | <1 | <0.1 | 50 | <0.1 | <5 | 96 | 97.2 |
| M31 | 0.2 | 41,000 | 8 | 20 | 0.8 | <0.1 | 58.3 | 19 | 33.7 | 56,400 | 12.5 | 756 | <0.1 | 0.3 | 50.0 | <1 | <0.1 | 74 | <0.1 | <5 | 88 | 97.4 |
| M37 | 0.3 | 25,200 | 22 | 20 | 0.7 | <0.1 | 49.8 | 14 | 19 | 44,000 | 8.7 | 675 | <0.1 | 0.3 | 38.2 | <1 | <0.1 | 370 | <0.1 | <5 | 61 | 62.2 |
| M43 | 0.4 | 35,900 | 19 | 30 | 0.7 | <0.1 | 61.2 | 18 | 35.6 | 52,800 | 15.3 | 1,030 | 0.1 | 0.4 | 44.7 | <1 | <0.1 | 170 | <0.1 | <5 | 78 | 87.5 |
| ***PNG MPR*** | *2* | *-* | *20* | *-* | *-* | *1.5* | *80* | *-* | *65* | *-* | *50* | *-* | *0.15* | *-* | *21* | *-* | *1* | *-* | *-* | *-* | *-* | *200* |
| ***SQGV*** | *2* | *-* | *20* | *-* | *-* | *1.5* | *80* | *-* | *65* | *-* | *50* | *-* | *0.15* | *-* | *21* | *-* | *1* | *-* | *-* | *-* | *-* | *200* |
| ***SQG-High*** | *25* | *-* | *70* | *-* | *-* | *10* | *370* | *-* | *270* | *-* | *220* | *-* | *1* | *-* | *52* | *-* | *4* | *-* | *-* | *-* | *-* | *410* |
| ***LORs*** | *0.1* | *50* | *1* | *10* | *0.1* | *0.1* | *0.1* | *0.1* | *0.1* | *50* | *0.1* | *0.1* | *0.1* | *0.1* | *0.1* | *1* | *0.1* | *2* | *0.1* | *5* | *1* | *0.5* |

Note: Yellow highlight indicates exceedance of the SQGV / PNG MPR indicating possible ecotoxicological effects. Red highlight indicates exceedance of the SQG-High guideline value indicating likely ecotoxicological effects.
^ Samples at M45 and M46 were collected in January 2017. Samples from all other sites were collected in June-July 2016

### 6.3.3 Nutrients and Organic Material

Nutrients, organic matter and organic carbon data collected in June-July 2016 (and January 2017 for sites M45 and M46) are presented in Table 6-14.

This data indicates that sites with higher percentages of organic matter/carbon generally had higher concentrations of nutrients. These sites included sites M1 to M4 and M9 to M12 in Orokolo Bay, and most sites along the offshore export pipeline corridor.

The three sites which had lower proportions of silts and clays in bed sediments (sites M7, M37 and M45 – see Section 6.3.1) also had lower concentrations of nutrients and organic material.

**Table 6-14 Nutrients, Total Organic Matter and Total Organic Carbon in Sediment**

| Site | Nutrients | | | | Total Organic Matter | Total Organic Carbon |
|---|---|---|---|---|---|---|
| | Nitrogen Oxides | Total Kjeldahl Nitrogen | Total Nitrogen | Total Phosphorus | | |
| | mg/kg | mg/kg | mg/kg | mg/kg | % | % |
| **Orokolo Bay** | | | | | | |
| M1 | <0.1 | 1,080 | 1,080 | 613 | 3.1 | 1.8 |
| M2 | <0.1 | 1,590 | 1,590 | 744 | 3.6 | 2.1 |
| M3 | <0.1 | 1,840 | 1,840 | 608 | 7.2 | 4.2 |
| M4 | 0.1 | 1,810 | 1,810 | 619 | 5.8 | 3.4 |
| M5 | 0.1 | 870 | 870 | 564 | 2.5 | 1.4 |
| M6 | <0.1 | 930 | 930 | 580 | 3.1 | 1.8 |
| M7 | 0.2 | 350 | 350 | 478 | 0.8 | <0.5 |
| M8 | <0.1 | 850 | 850 | 583 | 2.4 | 1.4 |
| M9 | <0.1 | 1,940 | 1,940 | 661 | 5.9 | 3.4 |
| M10 | <0.1 | 1,810 | 1,810 | 683 | 6.2 | 3.6 |
| M11 | <0.1 | 1,610 | 1,610 | 773 | 3.9 | 2.2 |
| M12 | 0.1 | 1,420 | 1,420 | 714 | 3.9 | 2.3 |
| M45^ | 1.5 | 420 | 420 | 682 | 0.5 | <0.5 |
| M46^ | <0.1 | 710 | 710 | 505 | 3.2 | 1.8 |
| **Offshore Export Pipeline Corridor** | | | | | | |
| M25 | <0.1 | 1,600 | 1,600 | 804 | 4.0 | 2.3 |
| M31 | <0.1 | 1,560 | 1,560 | 869 | 2.7 | 1.5 |
| M37 | <0.1 | 720 | 720 | 697 | 1.1 | 0.6 |
| M43 | <0.1 | 1,650 | 1,650 | 887 | 1.0 | 0.6 |
| ***LORs*** | *0.1* | *20* | *20* | *2* | *0.5* | *0.5* |

^ Samples at sites M45 and M46 were collected in January 2017. Samples from all other sites were collected in June-July 2016

#### 6.3.3.1 *Hydrocarbons*

The hydrocarbon data, including PAHs, TPHs, TRHs and BTEXN, is included in Appendix C.

All data for all sites were below the laboratory LORs and below relevant sediment quality guideline values.

### 6.3.4 Comparison to Other Studies

As noted in Section 4.1, sediment quality studies have previously been undertaken in the study area. Results from the PNG LNG Project EIS at Caution Bay are discussed above. Other results that overlap with the study area are:

- PNG LNG Project EIS sediment sampling results for the offshore export pipeline corridor (CNS, 2009). This study also presents results from the western part of the Gulf of Papua which provide regional context for result obtained during the present study.
- Sediment particle size analysis results from a study of a potential pipeline route linking Kerema and Port Moresby. This study area intersects with part of the offshore export pipeline corridor and also provides regional information at the northern and southern ends of the eastern Gulf of Papua.

Both studies have identified sediment particle size characteristics (in surface sediments) that are similar to those identified in the June-July 2016 and January 2017 surveys. Similar sediment characteristics were also observed across most of the eastern and western gulf, i.e. predominantly silts and clays in surface sediments, with higher proportions of sands in nearshore areas, especially near mouths of large rivers.

### 6.3.5 Summary of Sediment Quality Conditions

Sediment quality data indicates that bed sediment composition in surface sediments at sampling sites in the study area are predominantly silts and clays, with most sites having a proportion of silts and clays greater than 90%. The remaining proportion comprises sands (~5 to 10%). The exceptions to this were sites M7 and M45 in Orokolo Bay and Site M37 along the offshore export pipeline corridor near Yule Island, which had a much higher proportion of sands (55 to 66%). Site M45 at the Purari River mouth had the highest proportion of sand at 90%.

Concentrations of metals/metalloids in sediment were relatively consistent between monitoring sites, with all concentrations below sediment quality guideline values. The exception to this is nickel, which exceeded the SQGV at all sites, and is attributed to naturally elevated background levels associated with geological origin.

Results for sites M7 and M45 at Orokolo Bay and Site M37 along the offshore export pipeline corridor near Yule Island are slightly different to other sites in that they had lower concentrations of some metals (e.g., Al, Cu, Fe and Ni), nutrients and organic material, reflecting the lower proportion of fine sediments at these sites. This reflects the tendency of trace metals/metalloids and nutrients to bind more readily to finer sediment fractions than sands and gravels that are often dominated by silicates.

Hydrocarbons were not detected above the laboratory LORs in sediments at any sites.

## 6.4 Quality Control Samples

As part of the quality assurance program, the following field quality control samples (water and sediment) were collected:

- *Duplicates* – Water samples were split into two duplicate sub-samples and tested as separate (blind) samples by the laboratory. Duplicates were collected at 10% of monitoring sites.
- *Triplicates* – Water samples were split into three sub-samples and tested as separate (blind) samples by the primary laboratory and a second laboratory. Triplicates were collected at 5% of monitoring sites.
- *Field Blank* – Samples taken in the field using laboratory supplied solution which is placed into sample containers the same way as normal samples (i.e. using sampling equipment such as the sample pole, syringes and filters). Field blanks are typically taken once per monitoring event, and are used to test for sample contamination from sampling personnel, equipment, or the atmosphere. One field blank was taken during each field survey.
- *Trip blanks* – Used in monitoring programs when testing for volatile substances (such as hydrocarbons) to test for sample contamination during transport of samples. One trip blank was taken during each field survey.

**Relative Percent Difference**

To assess whether laboratory results from primary and quality control samples were within an acceptable range, the relative percent difference (RPD) between replicate samples was determined. RPD was calculated using the following equation:

$$RPD(\%) = \frac{|X_1 - X_2|}{\overline{X}} \times 100$$

where: $X_1$ = primary sample, $X_2$ = duplicate sample, and $\overline{X}$ = mean of results

An acceptable RPD varies depending on how close the concentration is to the laboratory LOR. The closer to the LOR, the more variability is expected between results. Therefore, RPD acceptability was deemed as being:

- 0-100%+ when concentration is less than 5 times the LOR.
- 0-75% when concentration is 5 to 10 times the LOR.
- 0-50% when concentration is greater than 10 times the LOR.

The results of the RPD analysis indicated that the majority (~99%) of primary samples and quality control samples were within the acceptable RPD range for water and sediment samples. There were a few isolated exceptions including TSS, vanadium, iron, aluminum, ammonia and phosphorus outside of the acceptable RPD range in some samples.

In regard to the field blank samples, concentrations of metals/metalloids, nutrients and hydrocarbons were all below the laboratory LOR. Furthermore, the trip blank samples had concentrations of hydrocarbons all below the laboratory LOR.

Therefore, based on the overall results of field replicate and blank samples, and the internal laboratory quality control analysis results provided in the laboratory reports, data obtained is considered to be reliable.

# 7 Summary and Conclusions

The Papua LNG Project has the potential to cause impacts to marine water and sediment quality at coastal, nearshore and offshore areas of the Gulf of Papua, between the Purari River and Caution Bay. While some previous studies have been conducted in these areas, further studies were undertaken to describe the existing environment for a future EIS/ESHIA.

These further studies involved dry season and wet season surveys across three broad study areas, including Orokolo Bay, the offshore export pipeline corridor and Caution Bay. The level of baseline data collection was extensive, and is considered sufficient to characterize the existing marine water and sediment environment.

The findings of the present study generally reflected the findings from previous studies in and adjacent to the study area. Furthermore, data collection for the present study was undertaken during fairly typical environmental conditions.

The key findings of the baseline characterization are as follows:

- Water quality at Orokolo Bay is strongly influenced by freshwater discharges from the Purari River. The influence of these freshwater discharges is illustrated in the water quality profiling data which indicated lower EC and salinity (~35,000 µS/cm) in surface waters (top 10 m) at monitoring sites at Orokolo Bay, compared to bottom waters in Orokolo Bay and other sites along the offshore export pipeline corridor and in Caution Bay (~55,000 µS/cm). The presence of this freshwater lens in the surface water layer (i.e. stratification) was more pronounced during the dry season survey relative to the wet season survey.
- The influence of Purari River discharges was greatest at the mouth, where EC in surface layers was ~2,000 µS/cm while EC in bottom waters was ~40,000 µS/cm. This data indicates the presence of a salt wedge at the mouth of the Purari River (i.e. freshwater overlying saline water). Furthermore, large spikes in turbidity at the Purari River mouth were coincident with a large slug of turbid water from rainfall in the Purari catchment.
- The deployed instrument data indicates that turbidity in Orokolo Bay is predominantly generated from wind and wave driven resuspension, with lower turbidity during calmer weather conditions and higher turbidity during periods of higher wind weather conditions and rougher seas.
- Turbidity and TSS levels were mostly lower during the dry season survey compared to the wet season survey at all sites. Turbidity levels were generally higher in Orokolo Bay compared to Caution Bay and offshore export pipeline corridor site. This pattern was also indicated in the TSS data, with higher TSS levels at Orokolo Bay (up to 17 mg/L) compared to Caution Bay (up to 7 mg/L) and offshore export pipeline corridor sites (up to 14 mg/L).
- The tidal range in Orokolo Bay is approximately 1 m during neap tides and approximately 2 m during spring tides.
- Water temperature was fairly consistent at all sites, with temperatures between 26°C and 30°C. Slightly warmer temperatures (1 to 2°C higher) were recorded during the wet season survey, and slightly warmer temperature was recorded in surface waters at most sites.
- Concentrations of nutrients, metals/metalloids and hydrocarbons in the study area were mostly below limits of reporting or only present in low concentrations during the dry season and wet season surveys. The only exceedances of water quality guideline values were slightly elevated

concentrations of dissolved copper at one site at Orokolo Bay during the dry season survey, dissolved mercury at one site at Orokolo Bay during the wet season survey, and ammonia at one site in Caution Bay during the wet season survey. In general, ammonia concentrations were higher during the wet season survey across the study area.

- Water quality along the offshore export pipeline corridor is characterized by low turbidity (<10 NTU) and TSS (<15 mg/L), pH around 8.0, and low concentrations of metals/metalloids and nutrients. Higher turbidity and TSS were generally found in bottom waters along the offshore pipeline route. Water quality during both the dry season and wet season surveys was relatively consistent throughout the water column, with dissolved oxygen levels greater than 80% saturation even at water depths greater than 50 m.
- Electrical conductivity and salinity at sites along the offshore export pipeline corridor were consistent through the water column during the dry season survey, but lower in surface waters during the wet season survey. This indicates that wet season freshwater flows may have diluted the surface water layers (top 10 to 20 m) in the offshore marine areas at the time of sampling. During the wet season survey, the four monitoring sites at the eastern extent of the offshore export pipeline corridor had slightly different water quality to other sites, with higher EC and pH values compared to other sites along the pipeline corridor.
- Caution Bay sites had lower turbidity and TSS and higher dissolved oxygen than sites in Orokolo Bay and the offshore export pipeline corridor. This is likely due to the lack of freshwater inputs into Caution Bay and the area being more sheltered from southeast trade winds. Turbidity and TSS was higher during the wet season survey at Caution Bay.
- Dissolved oxygen levels were above 90% saturation at all sites during both surveys at Caution Bay, and all sites had low concentrations of nutrients, metals/metalloids and hydrocarbons, with only one slight exceedance of water quality guideline values for ammonia.
- Sediment quality data indicates that bed sediment composition at monitoring sites in the study area are predominantly silts and clays, with most sites having a proportion of silts and clays greater than 90%. The remaining proportion comprises sands (~5 to 10%). The exceptions were sites M7 and M45 in Orokolo Bay and Site M37 along the offshore export pipeline corridor near Yule Island, which had a much higher proportion of sands (55 to 66%). Site M45 at the Purari River mouth had the highest proportion of sand at 90%.
- Concentrations of nutrients, metals/metalloids and hydrocarbons in the study area were mostly below limits of reporting or only present in low concentrations during the dry season and wet season surveys. The only exceedances of water quality guideline values copper at one site at Orokolo Bay during the dry season survey and dissolved mercury at one site at Orokolo Bay during the wet season survey. However, the concentrations measured in these samples were just above the limit of reporting where large variations in analytical results can be expected to occur.
- Total and dissolved concentrations of metals/metalloids were relatively consistent between dry and wet season surveys and between sites, with concentrations mostly similar between total and dissolved (except for aluminum and iron) and between different dissolved metals/metalloids (except for strontium). Strontium is a natural constituent of seawater and therefore typically found in high concentrations in the marine environment. Generally, concentrations of metals/metalloids were relatively similar in samples collected in surface, middle and bottom layers of the water column.

- Sediment quality results for sites M7 and M45 at Orokolo Bay and Site M37 along the offshore export pipeline corridor near Yule Island are slightly different to other sites in that they had lower concentrations of some metals (e.g., aluminum, copper, iron and nickel) and nutrients, reflecting the lower proportion of fine-grained sediments at these sites. This reflects the tendency of metals/metalloids and nutrients to bind more readily to finer sediment fractions than sands and gravels that are often dominated by silicates.
- Hydrocarbons were not detected above the laboratory LORs in sediments at any sites.
- Overall, the study area supports a high level of water and sediment quality with no evidence of anthropogenic contamination, although with some naturally elevated concentrations of metals/metalloids. Turbidity and physicochemical properties of water is highly variable across seasons due to changes in sea state conditions and fluvial inflows, and also varies based on proximity to river mouths, such as the Purari, Vailala and Vaihua rivers.

# 8 Study Team

The study team responsible for the preparation of the Upstream Marine Water and Sediment Quality ESBS report are listed in Table 8-1 below.

**Table 8-1 Marine Water and Sediment Quality Study Team**

| Personnel | Position | Qualifications |
|---|---|---|
| Dr Darren Richardson | Study Director | Bachelor of Applied Science (Honors)<br>Doctor of Philosophy (Ecology) |
| Brad Grant | Technical Lead for Marine Water and Sediment Quality | Bachelor of Environmental Science |
| Jeremy Visser | Study Coordinator | Bachelor of Laws<br>Bachelor of Environmental Management |
| Lyn Leger | Study Manager | Bachelor of Laws<br>Bachelor of Science (Honors)<br>Master of Laws |

# 9 Glossary and Abbreviations

| | | |
|---|---|---|
| ***Units of measurement*** | | |
| **% sat** | Percentage saturation | Measure of dissolved oxygen |
| **CFU/100mL** | Colony forming unit per 100 milliliters | Bacteriological analysis measure |
| **mg/kg** | Milligrams per kilogram | Measure of concentration in sediment |
| **mg/L** | Milligrams per liter | Measure of concentration in liquid |
| **µg/L** | Micrograms per liter | Measure of concentration in liquid |
| **µS/cm** | microSiemens per centimeter | Measure of salinity/electrical conductivity |
| ***Abbreviations and terms*** | | |
| **ALS** | Australian Laboratory Services | |
| **ANZECC** | Used as a short-form abbreviation to reference ANZECC/ARMCANZ (2000) water quality guidelines | |
| **ANZECC/ARMCANZ** | Australian and New Zealand Environment and Conservation Council / Agriculture and Resource Management Council of Australia and New Zealand | |
| **APHA** | American Public Health Association | |
| **BTEX** | Benzene-toluene-ethylbenzene-xylene | |
| **BTEXN** | Benzene-toluene-ethylbenzene-xylene-naphthalene | |
| **Caution Bay** | Subset of the study area, including all the waters of Caution Bay | |
| **CEPA** | Conservation and Environment Protection Authority of Papua New Guinea | |
| **CFU** | Colony-forming unit | |
| **CNS** | Coffey Natural Systems | |
| **CPF** | Central Processing Facility | |
| **DO** | Dissolved oxygen | |
| **EC** | Electrical conductivity | |
| **EHS Guideline** | Environment, Health and Safety Guidelines, developed by the IFC as representation of good international industry practice | |
| **EIS** | Environmental Impact Statement | |
| **ESBS** | Environmental and Social Baseline Study | |
| **ESHIA** | Environment, Social and Health Impact Assessment | |
| **FRP** | Filterable reactive phosphorus | |
| **GL-ENV/02/2004** | *Guideline for Conduct of Environmental Impact Assessment & Preparation of Environmental Impact Statement*, prepared by (former) Department of Environment and Conservation (2004) | |
| **GS EP ENV 120** | *Environmental impact Assessment of E&P activities*, General Specification prepared by TOTAL (2007) | |
| **GS EP ENV 111** | *Environmental Baseline and Monitoring Studies: Onshore Sites*, General Specification prepared by TOTAL (2012) | |
| **GS EP ENV 112** | *Environmental Baseline and Monitoring Studies: Offshore and Nearshore Sites*, General Specification prepared by TOTAL (2012) | |
| **IFC** | International Finance Corporation | |
| **IPIECA** | International Petroleum Industry Environmental Conservation Association | |
| **LNG** | Liquid natural gas | |
| **LOR** | Limit of reporting | |

| | |
|---|---|
| **NFA** | National Fisheries Authority |
| **NEPM** | National Environment Protection Measures |
| **NMSA** | National Maritime Safety Authority |
| **NTU** | Nephelometric turbidity units |
| **NOx** | Nitrous oxides |
| **OECD** | Organization for Economic Cooperation and Development |
| **Offshore export pipeline corridor** | Subset of the study area based on the offshore export pipeline corridor defined for the Project |
| **Orokolo Bay** | Subset of the study area, including the waters between the Purari and Vaihua river mouths, as far seaward as the offshore export pipeline corridor |
| **PAH** | Polynuclear aromatic hydrocarbon |
| **Papua LNG** | Gas extraction, transport and processing project proposed by TEP PNG. Involves operation of Elk-Antelope gasfields in Gulf Province, and onshore and subsea pipeline via Orokolo Bay to LNG Plant at Caution Bay, Central Province |
| **PDL** | Petroleum Development License |
| **PL** | Pipeline License |
| **PNG LNG** | Gas extraction, transport and processing project operated by ExxonMobil. Involves operation of gasfields in Hela and Western Provinces, and onshore and subsea pipeline to LNG Plant at Caution Bay, Central Province |
| **PNG ER** | Used as a short-form abbreviation to reference water quality guidelines in Schedule 1 of the Environment (Water Quality Criteria) Regulation 2002 |
| **PNG MPR** | Used as a short-form abbreviation to reference sediment contaminant screening levels in Schedule 2 of the Marine Pollution (Sea Dumping) Regulation 2014 |
| **PPFL** | Petroleum Processing Facility License |
| **ppt** | Parts per thousand |
| **PRL** | Petroleum Retention License |
| **Project** | The Papua LNG Project |
| **PSD** | Particle size distribution |
| **RPD** | Relative percent difference |
| **SQGV** | Used as a short-form abbreviation to reference sediment quality guideline values determined by Simpson *et al.* (2013). Relates to contamination levels for sediment below which ecotoxicological effects are not expected. |
| **SQG-High** | Used as a short-form abbreviation to reference subset of sediment quality guidelines values determined by Simpson *et al.* (2013), i.e. provides concentration levels for sediment above which ecotoxicological effects are possible. |
| **Study Area** | The area which is the focus of this ESBS report, consisting of the following three subsets:<br>(i) Orokolo Bay and waters offshore of the Purari River delta<br>(ii) Offshore export pipeline corridor<br>(iii) Caution Bay |
| **TEP PNG** | Total E&P Papua New Guinea |
| **TKN** | Total Kjeldahl nitrogen |
| **TN** | Total nitrogen |
| **TP** | Total phosphorus |
| **TPH** | Total petroleum hydrocarbons |

| | |
|---|---|
| **TRH** | Total recoverable hydrocarbons - TRH is the same as TPH except that the TRH carbon chain fractions are reported slightly differently to allow correlation with health screening levels in the National Environmental Protection (Assessment of Site Contamination) Amendment Measure 2013 (No 1) |
| **TSS** | Total suspended solids |
| **UTM** | Universal Trans Mercator |
| **USEPA** | United States Environmental Protection Agency |
| **UXO** | Unexploded ordnance |
| **WGS** | World Geodetic System |

# 10 References

Australian and New Zealand Environment and Conservation Council/Agriculture and Resource Management Council of Australia and New Zealand (ANZECC/ARMCANZ) (2000), *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, Paper No. 4 to National Water Quality Management Strategy

BMT WBM (2017a), *Papua LNG Project Upstream Hydrology and Meteorology Baseline Report*, prepared for ERIAS Group Pty Ltd and Total E&P PNG Limited

BMT WBM (2017b), *Papua LNG Project Physical Oceanography Baseline Report*, prepared for ERIAS Group Pty Ltd and Total E&P PNG Limited

BMT WBM (2017c), *Papua LNG Project Marine Biodiversity Baseline Report*, prepared for ERIAS Group Pty Ltd and Total E&P PNG Limited

Coffey Natural Systems (2008a), *Offshore Impact Assessment*, Appendix 11 to PNG LNG EIS, prepared for Esso Highlands Limited, report no. CR 1284_7

Coffey Natural Systems (2008b), *Nearshore Impact Assessment*, Appendix 23 to PNG LNG Project EIS, prepared for Esso Highlands Limited, report no. CR 1284_5

Coffey Natural Systems (2009), *PNG LNG Project Environmental Impact Statement*, prepared for Esso Highlands Limited

ERIAS Group (2016a), *Pasca A Development Project Environmental Impact Statement*, prepared for Twinza Oil (PNG) Limited

ERIAS Group (2016b), *Marine Studies Scope and Methods,* Papua LNG Project, prepared by ERIAS Group Pty Ltd for TEP PNG Limited, report 01215B_6-5_v5

ERIAS Group (2016c), *Addendum to Marine Studies Scope and Methods,* Papua LNG Project, prepared by ERIAS Group Pty Ltd for TEP PNG Limited, report 01215B_6-14_v3

ERIAS Group (2017a), *Papua LNG Project Marine Fisheries and Resources Baseline Report*, prepared for Total E&P PNG Limited

ERIAS Group (2017b), *Papua LNG Project Marine and River Traffic and Transport Baseline Report*, prepared for Total E&P PNG Limited

Evesson, DT (1983), 'The climate of the Purari River basin', Chapter 2 in Part I of Petr, T (ed.) *The Purari: tropical environment of a high rainfall river basin*, The Hague, Dr W Junk Publishers

Finlayson, M (2017), *Papua LNG Project Upstream Community and Demographics Baseline Report*, prepared for Total E&P PNG Limited

GEMS (2008), *Caution Bay, Papua New Guinea: Oceanographic Studies & Dredging Program Simulations*, Appendix 22 to PNG LNG Project EIS

Martins, F and Wolanski, E (2015). *The pattern and intrusion of the Fly River flood plume to the Gulf of Papua and the Torres Strait: Preliminary numerical modelling results*. TropWATER Report 38/15, James Cook University, Townsville

Saint-cast, F and Condie, S (2006), *Circulation modelling in Torres Strait*, Record 2006/18, Geoscience Australia and CSIRO

Simpson, SL, Batley, GE and Chariton, AA (2013), *Revision of the ANZECC/ARMCANZ Sediment Quality Guidelines*, CSIRO Land and Water Science Report 08/07, prepared for Department of Sustainability, Environment, Water, Population and Communities

Wolanski, E, Norro, A, and King, B, (1994). *Water circulation in the Gulf of Papua*. Continental Shelf Research **15**:185–212

# Appendix A Water and Sediment Sampling Techniques



***Browse Enterprise*, vessel used for field surveys[5]**

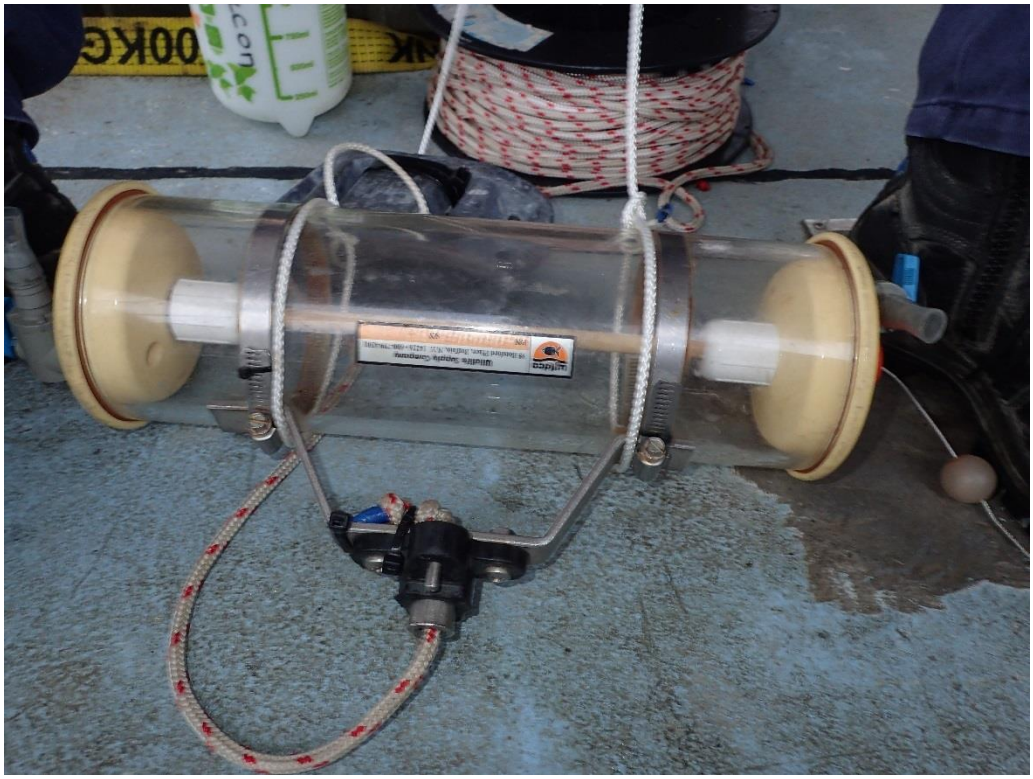


**Marine sediment sampling using Van Veen grab**

[5] Photo from specification sheet for vessel: http://www.questmaritimeservices.com.au/documents/specs/Quest-Maritime-Services-Browse-Enterprise-Specifications.pdf




**Transfer of marine sediment sample to container**



**Water quality sampling container (Van Dorn – used on first survey)**



**Marine water sampling (mid and bottom)**




**Deployment of water quality instrument for continuous logging**



**Instrument deployment**

# Appendix B Hydrocarbon Data – Water

## Table B-1 Orokolo Bay - PAH in Water – Dry Season

| Site | Depth Profile | Polynuclear Aromatic Hydrocarbons | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz(a)anthracene | Chrysene | Benzo(b+j)fluoranthene | Benzo(k)fluoranthene | Benzo(a)pyrene | Indeno(1.2.3.cd)pyrene | Dibenz(a.h)anthracene | Benzo(g.h.i)perylene | Sum of polycyclic aromatic hydrocarbons | Benzo(a)pyrene TEQ (zero) |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| **Orokolo Bay** | | | | | | | | | | | | | | | | | | | |
| M1-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M1-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M2-S | Surface | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| M2-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M3-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M3-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M3-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M4-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M4-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M4-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M5-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M5-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M6-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M6-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M7-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M7-D | Bottom | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| M8-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M8-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M9-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M9-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M9-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M10-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M10-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M11-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M11-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M11-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M12-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M12-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M12-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |

**NOTE**: Results are not available for all sampling locations as some sample bottles were broken in transit

## Table B-2 Orokolo Bay - PAH in Water – Wet Season

| Site | Depth Profile | Polynuclear Aromatic Hydrocarbons | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz(a)anthracene | Chrysene | Benzo(b+j)fluoranthene | Benzo(k)fluoranthene | Benzo(a)pyrene | Indeno(1.2.3.cd)pyrene | Dibenz(a.h)anthracene | Benzo(g.h.i)perylene | Sum of polycyclic aromatic hydrocarbons | Benzo(a)pyrene TEQ (zero) |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| **Orokolo Bay** | | | | | | | | | | | | | | | | | | | |
| M1-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M1-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M2-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M2-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M3-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M3-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M3-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M4-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M4-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M4-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M5-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M5-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M6-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M6-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M7-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M7-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M8-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M8-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M9-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M9-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M9-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M10-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M10-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M11-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M11-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M11-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M12-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M12-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M12-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M45-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M45-B | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M46-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M46-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M46-B | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |

## Table B-3 Caution Bay - PAH in Water – Dry Season

| Site | Depth Profile | Polynuclear Aromatic Hydrocarbons | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz(a)anthracene | Chrysene | Benzo(b+j)fluoranthene | Benzo(k)fluoranthene | Benzo(a)pyrene | Indeno(1.2.3.cd)pyrene | Dibenz(a.h)anthracene | Benzo(g.h.i)perylene | Sum of polycyclic aromatic hydrocarbons | Benzo(a)pyrene TEQ (zero) |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| **Caution Bay** | | | | | | | | | | | | | | | | | | | |
| M13-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M13-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M13-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M17-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M17-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M19-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M19-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M21-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M21-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M22-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M22-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |

## Table B-4 Caution Bay - PAH in Water – Wet Season

| Site | Depth Profile | Polynuclear Aromatic Hydrocarbons | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz(a)anthracene | Chrysene | Benzo(b+j)fluoranthene | Benzo(k)fluoranthene | Benzo(a)pyrene | Indeno(1.2.3.cd)pyrene | Dibenz(a.h)anthracene | Benzo(g.h.i)perylene | Sum of polycyclic aromatic hydrocarbons | Benzo(a)pyrene TEQ (zero) |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| **Caution Bay** | | | | | | | | | | | | | | | | | | | |
| M13-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M13-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M13-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M15-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M15-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M15-B | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M16-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M16-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M16-B | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M17-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M17-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M19-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M19-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M20-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M20-B | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M21-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M21-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M22-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M22-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M23-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M23-B | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M24-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M24-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M24-B | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |

## Table B-5 Offshore Export Pipeline Corridor - PAH in Water – Dry Season

| Site | Depth Profile | Polynuclear Aromatic Hydrocarbons | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz(a)anthracene | Chrysene | Benzo(b+j)fluoranthene | Benzo(k)fluoranthene | Benzo(a)pyrene | Indeno(1.2.3.cd)pyrene | Dibenz(a.h)anthracene | Benzo(g.h.i)perylene | Sum of polycyclic aromatic hydrocarbons | Benzo(a)pyrene TEQ (zero) |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| **Offshore Pipeline** | | | | | | | | | | | | | | | | | | | |
| M25-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M25-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M25-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M31-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M31-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M31-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M37-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M37-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M37-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M43-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M43-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M43-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |

## Table B-6 Offshore Export Pipeline Corridor - PAH in Water – Wet Season

| Site | Depth Profile | Polynuclear Aromatic Hydrocarbons | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz(a)anthracene | Chrysene | Benzo(b+j)fluoranthene | Benzo(k)fluoranthene | Benzo(a)pyrene | Indeno(1.2.3.cd)pyrene | Dibenz(a.h)anthracene | Benzo(g.h.i)perylene | Sum of polycyclic aromatic hydrocarbons | Benzo(a)pyrene TEQ (zero) |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| **Caution Bay** | | | | | | | | | | | | | | | | | | | |
| **Offshore Pipeline** | | | | | | | | | | | | | | | | | | | |
| M25-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M25-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M25-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M31-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M31-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M31-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M37-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M37-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M37-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M43-S | Surface | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M43-M | Middle | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |
| M43-D | Bottom | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.5 | <1.0 | <1.0 | <1.0 | <0.5 | <0.5 |

## Table B-7 Orokolo Bay - TPH/TRH in Water – Dry Season

| Site | Depth Profile | Total Petroleum Hydrocarbons | | | | | Total Recoverable Hydrocarbons | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | C6 - C9 Fraction | C10 - C14 Fraction | C15 - C28 Fraction | C29 - C36 Fraction | C10 - C36 Fraction (sum) | C6 - C10 Fraction | C6 - C10 Fraction minus BTEX (F1) | >C10 - C16 Fraction | >C16 - C34 Fraction | >C34 - C40 Fraction | >C10 - C40 Fraction (sum) | >C10 - C16 Fraction minus Naphthalene (F2) |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| **Orokolo Bay** | | | | | | | | | | | | | |
| M1-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M1-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M2-S | Surface | <20 | ---- | ---- | ---- | ---- | <20 | <20 | ---- | ---- | ---- | ---- | ---- |
| M2-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M3-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M3-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M3-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M4-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M4-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M4-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M5-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M5-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M6-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M6-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M7-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M7-D | Bottom | <20 | ---- | ---- | ---- | ---- | <20 | <20 | ---- | ---- | ---- | ---- | ---- |
| M8-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M8-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M9-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M9-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M9-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M10-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M10-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M11-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M11-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M11-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M12-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M12-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M12-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |

**NOTE**: Results are not available for all sampling locations as some sample bottles were broken in transit

## Table B-8 Orokolo Bay - TPH/TRH in Water – Wet Season

| Site | Depth Profile | Total Petroleum Hydrocarbons | | | | | Total Recoverable Hydrocarbons | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | C6 - C9 Fraction | C10 - C14 Fraction | C15 - C28 Fraction | C29 - C36 Fraction | C10 - C36 Fraction (sum) | C6 - C10 Fraction | C6 - C10 Fraction minus BTEX (F1) | >C10 - C16 Fraction | >C16 - C34 Fraction | >C34 - C40 Fraction | >C10 - C40 Fraction (sum) | >C10 - C16 Fraction minus Naphthalene (F2) |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| **Orokolo Bay** | | | | | | | | | | | | | |
| M1-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M1-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M2-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M2-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M3-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M3-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M3-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M4-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M4-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M4-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M5-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M5-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M6-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M6-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M7-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M7-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M8-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M8-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M9-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M9-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M9-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M10-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M10-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M11-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M11-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M11-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M12-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M12-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M12-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M45-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M45-B | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M46-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M46-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M46-B | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |

## Table B-9 Caution Bay - TPH/TRH in Water – Dry Season

| Site | Depth Profile | Total Petroleum Hydrocarbons | | | | | Total Recoverable Hydrocarbons | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | C6 - C9 Fraction | C10 - C14 Fraction | C15 - C28 Fraction | C29 - C36 Fraction | C10 - C36 Fraction (sum) | C6 - C10 Fraction | C6 - C10 Fraction minus BTEX (F1) | >C10 - C16 Fraction | >C16 - C34 Fraction | >C34 - C40 Fraction | >C10 - C40 Fraction (sum) | >C10 - C16 Fraction minus Naphthalene (F2) |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| **Caution Bay** | | | | | | | | | | | | | |
| M13-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M13-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M13-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M17-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M17-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M19-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M19-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M21-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M21-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M22-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M22-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |

## Table B-10 Caution Bay - TPH/TRH in Water – Wet Season

| Site | Depth Profile | Total Petroleum Hydrocarbons | | | | | Total Recoverable Hydrocarbons | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | C6 - C9 Fraction | C10 - C14 Fraction | C15 - C28 Fraction | C29 - C36 Fraction | C10 - C36 Fraction (sum) | C6 - C10 Fraction | C6 - C10 Fraction minus BTEX (F1) | >C10 - C16 Fraction | >C16 - C34 Fraction | >C34 - C40 Fraction | >C10 - C40 Fraction (sum) | >C10 - C16 Fraction minus Naphthalene (F2) |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| **Caution Bay** | | | | | | | | | | | | | |
| M13-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M13-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M13-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M15-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M15-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M15-B | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M16-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M16-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M16-B | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M17-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M17-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M19-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M19-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M20-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M20-B | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M21-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M21-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M22-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M22-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M23-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M23-B | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M24-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M24-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M24-B | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |

## Table B-11 Offshore Export Pipeline corridor - TPH/TRH in Water – Dry Season

| Site | Depth Profile | Total Petroleum Hydrocarbons | | | | | Total Recoverable Hydrocarbons | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | C6 - C9 Fraction | C10 - C14 Fraction | C15 - C28 Fraction | C29 - C36 Fraction | C10 - C36 Fraction (sum) | C6 - C10 Fraction | C6 - C10 Fraction minus BTEX (F1) | >C10 - C16 Fraction | >C16 - C34 Fraction | >C34 - C40 Fraction | >C10 - C40 Fraction (sum) | >C10 - C16 Fraction minus Naphthalene (F2) |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| **Offshore Pipeline** | | | | | | | | | | | | | |
| M25-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M25-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M25-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M31-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M31-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M31-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M37-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M37-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M37-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M43-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M43-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M43-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |

## Table B-12 Offshore Export Pipeline Corridor - TPH/TRH in Water – Wet Season

| Site | Depth Profile | Total Petroleum Hydrocarbons | | | | | Total Recoverable Hydrocarbons | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | C6 - C9 Fraction | C10 - C14 Fraction | C15 - C28 Fraction | C29 - C36 Fraction | C10 - C36 Fraction (sum) | C6 - C10 Fraction | C6 - C10 Fraction minus BTEX (F1) | >C10 - C16 Fraction | >C16 - C34 Fraction | >C34 - C40 Fraction | >C10 - C40 Fraction (sum) | >C10 - C16 Fraction minus Naphthalene (F2) |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| **Offshore Pipeline** | | | | | | | | | | | | | |
| M25-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M25-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M25-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M31-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M31-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M31-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M37-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M37-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M37-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M43-S | Surface | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M43-M | Middle | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |
| M43-D | Bottom | <20 | <50 | <100 | <50 | <50 | <20 | <20 | <100 | <100 | <100 | <100 | <100 |

## Table B-13 BTEXN in Water – Dry Season

| Site | Depth Profile | BTEXN | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Benzene | Toluene | Ethylbenzene | meta- & para-Xylene | ortho-Xylene | Total Xylenes | Sum of BTEX | Naphthalene |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| **Orokolo Bay** | | | | | | | | | |
| M1-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M1-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M2-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M2-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M3-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M3-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M3-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M4-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M4-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M4-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M5-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M5-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M6-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M6-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M7-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M7-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M8-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M8-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M9-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M9-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M9-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M10-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M10-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M11-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M11-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M11-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M12-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M12-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M12-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| **Caution Bay** | | | | | | | | | |
| M13-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M13-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M13-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M17-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M17-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M19-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M19-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M21-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M21-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M22-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M22-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| **Offshore Pipeline** | | | | | | | | | |
| M25-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M25-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M25-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M31-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M31-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M31-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M37-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M37-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M37-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M43-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M43-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M43-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |

## Table B-14 BTEXN in Water – Wet Season

| Site | Depth Profile | BTEXN | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Benzene | Toluene | Ethylbenzene | meta- & para-Xylene | ortho-Xylene | Total Xylenes | Sum of BTEX | Naphthalene |
| | | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L | µg/L |
| **Orokolo Bay** | | | | | | | | | |
| M1-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M1-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M2-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M2-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M3-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M3-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M3-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M4-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M4-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M4-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M5-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M5-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M6-S | Surface | <1 | 3 | <2 | <2 | <2 | <2 | 3 | <5 |
| M6-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M7-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M7-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M8-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M8-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M9-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M9-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M9-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M10-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M10-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M11-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M11-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M11-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M12-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M12-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M12-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M45-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M45-B | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M46-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M46-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M46-B | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| **Caution Bay** | | | | | | | | | |
| M13-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M13-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M13-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M15-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M15-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M15-B | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M16-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M16-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M16-B | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M17-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M17-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M19-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M19-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M20-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M20-B | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M21-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M21-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M22-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M22-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M23-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M23-B | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M24-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M24-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M24-B | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| **Offshore Pipeline** | | | | | | | | | |
| M25-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M25-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M25-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M31-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M31-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M31-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M37-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M37-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M37-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M43-S | Surface | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M43-M | Middle | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |
| M43-D | Bottom | <1 | <2 | <2 | <2 | <2 | <2 | <1 | <5 |

# Appendix C Hydrocarbon Data – Sediment

## Table C-1 PAH in Sediment

| Site | Polynuclear Aromatic Hydrocarbons | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Naphthalene | Acenaphthylene | Acenaphthene | Fluorene | Phenanthrene | Anthracene | Fluoranthene | Pyrene | Benz(a)anthracene | Chrysene | Benzo(b+j)fluoranthene | Benzo(k)fluoranthene | Benzo(a)pyrene | Indeno(1.2.3.cd)pyrene | Dibenz(a.h)anthracene | Benzo(g.h.i)perylene | Sum of polycyclic aromatic hydrocarbons | Benzo(a)pyrene TEQ (zero) | Benzo(a)pyrene TEQ (half LOR) | Benzo(a)pyrene TEQ (LOR) |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **Orokolo Bay** | | | | | | | | | | | | | | | | | | | | |
| M1 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | 1.2 |
| M2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | 1.2 |
| M3 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | 1.2 |
| M4 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | 1.2 |
| M5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | 1.2 |
| M6 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | 1.2 |
| M7 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | 1.2 |
| M8 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | 1.2 |
| M9 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | 1.2 |
| M10 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | 1.2 |
| M11 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | 1.2 |
| M12 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | 1.2 |
| **Offshore Pipeline** | | | | | | | | | | | | | | | | | | | | |
| M25 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | 1.2 |
| M31 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | 1.2 |
| M37 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | 1.2 |
| M43 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 | 1.2 |

## Table C-2 TPH/TRH in Sediment

| Site | Total Petroleum Hydrocarbons | | | | | Total Recoverable Hydrocarbons | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C6 - C9 Fraction | C10 - C14 Fraction | C15 - C28 Fraction | C29 - C36 Fraction | C10 - C36 Fraction (sum) | C6 - C10 Fraction | C6 - C10 Fraction minus BTEX (F1) | >C10 - C16 Fraction | >C16 - C34 Fraction | >C34 - C40 Fraction | >C10 - C40 Fraction (sum) | >C10 - C16 Fraction minus Naphthalene (F2) |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **Orokolo Bay** | | | | | | | | | | | | |
| M1 | <10 | <50 | <100 | <100 | <50 | <10 | <10 | <50 | <100 | <100 | <50 | <50 |
| M2 | <10 | <50 | <100 | <100 | <50 | <10 | <10 | <50 | <100 | <100 | <50 | <50 |
| M3 | <10 | <50 | <100 | <100 | <50 | <10 | <10 | <50 | <100 | <100 | <50 | <50 |
| M4 | <10 | <50 | <100 | <100 | <50 | <10 | <10 | <50 | <100 | <100 | <50 | <50 |
| M5 | <10 | <50 | <100 | <100 | <50 | <10 | <10 | <50 | <100 | <100 | <50 | <50 |
| M6 | <10 | <50 | <100 | <100 | <50 | <10 | <10 | <50 | <100 | <100 | <50 | <50 |
| M7 | <10 | <50 | <100 | <100 | <50 | <10 | <10 | <50 | <100 | <100 | <50 | <50 |
| M8 | <10 | <50 | <100 | <100 | <50 | <10 | <10 | <50 | <100 | <100 | <50 | <50 |
| M9 | <10 | <50 | <100 | <100 | <50 | <10 | <10 | <50 | <100 | <100 | <50 | <50 |
| M10 | <10 | <50 | <100 | <100 | <50 | <10 | <10 | <50 | <100 | <100 | <50 | <50 |
| M11 | <10 | <50 | <100 | <100 | <50 | <10 | <10 | <50 | <100 | <100 | <50 | <50 |
| M12 | <10 | <50 | <100 | <100 | <50 | <10 | <10 | <50 | <100 | <100 | <50 | <50 |
| **Offshore Pipeline** | | | | | | | | | | | | |
| M25 | <10 | <70 | <100 | <100 | <50 | <10 | <10 | <60 | <100 | <100 | <50 | <50 |
| M31 | <10 | <70 | <100 | <100 | <50 | <10 | <10 | <50 | <100 | <100 | <50 | <50 |
| M37 | <10 | <50 | <100 | <100 | <50 | <10 | <10 | <50 | <100 | <100 | <50 | <50 |
| M43 | <10 | <50 | <100 | <100 | <50 | <10 | <10 | <50 | <100 | <100 | <50 | <50 |

## Table C-3 BTEXN in Sediment

| Site | BTEXN | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Benzene | Toluene | Ethylbenzene | meta- & para-Xylene | ortho-Xylene | Total Xylenes | Sum of BTEX | Naphthalene |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **Orokolo Bay** | | | | | | | | |
| M1 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 |
| M2 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 |
| M3 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 |
| M4 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 |
| M5 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 |
| M6 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 |
| M7 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 |
| M8 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 |
| M9 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 |
| M10 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 |
| M11 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 |
| M12 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 |
| **Offshore Pipeline** | | | | | | | | |
| M25 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 |
| M31 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 |
| M37 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 |
| M43 | <0.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 |

# Appendix D Laboratory Data

ALS Environmental

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **Work Order** | : **EB1617699** | Page | : 1 of 78 |
| **Amendment** | : **2** | | |
| Client | : **BMT WBM GROUP LTD** | Laboratory | : Environmental Division Brisbane |
| Contact | : MR JEREMY VISSER | Contact | : John Pickering |
| Address | : PO BOX 203 SPRING HILL BRISBANE QLD 4004 | Address | : 2 Byth Street Stafford QLD Australia 4053 |
| Telephone | : +61 07 3831 6744 | Telephone | : +61 7 3552 8634 |
| Project | : B21414 Elk | Date Samples Received | : 11-Jul-2016 12:05 |
| Order number | : ---- | Date Analysis Commenced | : 12-Jul-2016 |
| C-O-C number | : ---- | Issue Date | : 26-Jul-2016 13:59 |
| Sampler | : CONOR JONES, DANIEL MORAN | | |
| Site | : ---- | | |
| Quote number | : ---- | | |
| No. of samples received | : 74 | | |
| No. of samples analysed | : 73 | | |

NATA Accredited Laboratory 825
Accredited for compliance with
ISO/IEC 17025.

NATA
WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

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* |
|---|---|---|
| Andrew Epps | Senior Inorganic Chemist | Brisbane Inorganics, Stafford, QLD |
| Andrew Epps | Senior Inorganic Chemist | WB Water Lab Brisbane, Stafford, QLD |
| Greg Vogel | Laboratory Manager | Brisbane Inorganics, Stafford, QLD |
| Greg Vogel | Laboratory Manager | WB Water Lab Brisbane, Stafford, QLD |
| Kim McCabe | Senior Inorganic Chemist | Brisbane Inorganics, Stafford, QLD |
| Matt Frost | Senior Organic Chemist | Brisbane Organics, Stafford, QLD |

## 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.

- EK061G (Total Kjeldahl Nitrogen as N) / EK067G (Total Phosphorus as P): Samples were diluted due to matrix interference. LOR adjusted accordingly.
- EP008 (Chlorophyll a and Pheopythin a): Samples DUP3, DUP4, 18, 19, 22, 23-b, 24-b, 16 and 17 volume filtered by client 400ml. LOR adjusted accordingly.
- It is recognised that EG093-T (Total Metals in Saline Water) is less than EG093-F (Dissolved Metals in Saline Water) for some samples. However, the difference is within experimental variation of the methods.
- It is recognised that EG094-T (Total Metals in Fresh Water) is less than EG094-F (Dissolved Metals in Fresh Water) for some samples. However, the difference is within experimental variation of the methods.
- It is recognised that Total Phosphorus is less than Free Reactive Phosphorus for samples 21 and 22. However, the difference is within experimental variation of the methods.
- Amendment (22/7/16): This report has been amended following minor LIMS report formatting corrections. The correct LOR's have now been reported for Cu and Sn.
- Amendment 2 (25/7/16): This report has been amended following minor LIMS report formatting corrections. The correct LOR's have now been reported for all analytes.
- EP075(SIM): High LCS recovery deemed acceptable as all associated analyte results are less than LOR.
- 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 | M1-S | M1-D | M2-S | M2-D | M3-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jun-2016 12:00 | 26-Jun-2016 12:10 | 25-Jun-2016 16:45 | 25-Jun-2016 16:55 | 25-Jun-2016 10:20 |
| Compound | CAS Number | LOR | Unit | | EB1617699-001 | EB1617699-002 | EB1617699-003 | EB1617699-004 | EB1617699-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | 17 | 16 | 5 | 11 | 3 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | 6 | 7 | 6 | 9 | <5 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 0.8 | 1.0 | 0.8 | 1.4 | 0.6 |
| Barium | 7440-39-3 | 1 | µg/L | | 11 | 7 | 11 | 5 | 10 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | 1 |
| Iron | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 4400 | 6790 | 4420 | 7450 | 4170 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 2.5 | 2.1 | 2.2 | 1.8 | 2.2 |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | 801 | 432 | 53 | 394 | 39 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 0.9 | 1.3 | 0.7 | 1.5 | 0.8 |
| Barium | 7440-39-3 | 1 | µg/L | | 11 | 8 | 11 | 6 | 10 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | 1.2 | 0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | 0.5 | 0.3 | <0.2 | 0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | 2 | 4 | 1 | 2 | <1 |
| Iron | 7439-89-6 | 5 | µg/L | | 920 | 473 | 67 | 429 | 65 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | 0.4 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | 1.4 | <0.5 | <0.5 | 0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 4300 | 6390 | 4090 | 7470 | 3850 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 3.7 | 2.1 | 1.1 | 1.9 | 0.9 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M1-S | M1-D | M2-S | M2-D | M3-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jun-2016 12:00 | 26-Jun-2016 12:10 | 25-Jun-2016 16:45 | 25-Jun-2016 16:55 | 25-Jun-2016 10:20 |
| Compound | CAS Number | LOR | Unit | | EB1617699-001 | EB1617699-002 | EB1617699-003 | EB1617699-004 | EB1617699-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| **Zinc** | 7440-66-6 | 5 | µg/L | | <5 | **5** | <5 | <5 | <5 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Arsenic** | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Barium** | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Cadmium** | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Chromium** | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Cobalt** | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Copper** | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Iron** | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Lead** | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Strontium** | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Tin** | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Vanadium** | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Zinc** | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EG094T: Total metals in Fresh water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Arsenic** | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Barium** | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Cadmium** | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Chromium** | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Cobalt** | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Copper** | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Iron** | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Lead** | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Strontium** | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Tin** | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Vanadium** | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Zinc** | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| **Ammonia as N** | 7664-41-7 | 0.01 | mg/L | | **0.03** | **0.10** | **0.02** | **0.19** | **0.02** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M1-S | M1-D | M2-S | M2-D | M3-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jun-2016 12:00 | 26-Jun-2016 12:10 | 25-Jun-2016 16:45 | 25-Jun-2016 16:55 | 25-Jun-2016 10:20 |
| Compound | CAS Number | LOR | Unit | | EB1617699-001 | EB1617699-002 | EB1617699-003 | EB1617699-004 | EB1617699-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser - Continued** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | **0.01** | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | **0.05** | <0.01 | **0.07** | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | **0.06** | <0.01 | **0.07** | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.06** | **0.06** | <0.05 | <0.05 | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | **0.01** | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | **1** | **1** | **3** | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | ---- | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | ---- | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | ---- | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M1-S | M1-D | M2-S | M2-D | M3-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jun-2016 12:00 | 26-Jun-2016 12:10 | 25-Jun-2016 16:45 | 25-Jun-2016 16:55 | 25-Jun-2016 10:20 |
| Compound | CAS Number | LOR | Unit | | EB1617699-001 | EB1617699-002 | EB1617699-003 | EB1617699-004 | EB1617699-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | ---- | <50 | <50 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | ---- | <100 | <100 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | ---- | <50 | <50 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | ---- | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | ---- | <100 | <100 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | ---- | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | ---- | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | ---- | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | ---- | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **28.9** | **31.1** | ---- | **33.1** | **35.8** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **69.7** | **81.9** | ---- | **79.4** | **82.8** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M1-S | M1-D | M2-S | M2-D | M3-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jun-2016 12:00 | 26-Jun-2016 12:10 | 25-Jun-2016 16:45 | 25-Jun-2016 16:55 | 25-Jun-2016 10:20 |
| Compound | CAS Number | LOR | Unit | | EB1617699-001 | EB1617699-002 | EB1617699-003 | EB1617699-004 | EB1617699-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)S: Phenolic Compound Surrogates - Continued** | | | | | | | | | |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | 66.8 | 79.5 | ---- | 76.9 | 79.7 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 1 | % | | 92.7 | 104 | ---- | 107 | 107 |
| Anthracene-d10 | 1719-06-8 | 1 | % | | 66.7 | 79.2 | ---- | 76.6 | 80.7 |
| 4-Terphenyl-d14 | 1718-51-0 | 1 | % | | 92.1 | 106 | ---- | 104 | 109 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 2 | % | | 99.6 | 92.6 | 92.3 | 86.9 | 91.6 |
| Toluene-D8 | 2037-26-5 | 2 | % | | 104 | 98.5 | 99.8 | 98.7 | 99.8 |
| 4-Bromofluorobenzene | 460-00-4 | 2 | % | | 107 | 106 | 108 | 113 | 105 |

## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

| Compound | CAS Number | LOR | Unit | Client sample ID | M3-M | M3-D | M4-S | M4-M | M4-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 10:30 | 25-Jun-2016 10:40 | 25-Jun-2016 13:45 | 25-Jun-2016 13:55 | 25-Jun-2016 14:05 |
| | | | | | EB1617699-006 | EB1617699-007 | EB1617699-008 | EB1617699-009 | EB1617699-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| **Suspended Solids (SS)** | ---- | 1 | mg/L | | **1** | **6** | **2** | **2** | **8** |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **1.7** | **1.6** | **0.7** | **0.8** | **1.6** |
| **Barium** | 7440-39-3 | 1 | µg/L | | **5** | **4** | **10** | **8** | **5** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Iron** | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **7690** | **7450** | **4470** | **5050** | **7760** |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **1.6** | **1.7** | **2.2** | **1.9** | **1.7** |
| **Zinc** | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | **19** | **65** | **9** | **25** | **137** |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **1.8** | **1.8** | **0.9** | **0.6** | **1.7** |
| **Barium** | 7440-39-3 | 1 | µg/L | | **5** | **5** | **11** | **7** | **4** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | <1 | **2** | **2** | <1 |
| **Iron** | 7439-89-6 | 5 | µg/L | | **33** | **95** | **15** | **46** | **174** |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **7050** | **7860** | **4300** | **4600** | **7160** |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | <0.5 | **0.8** | **0.6** | <0.5 | **0.9** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M3-M | M3-D | M4-S | M4-M | M4-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 10:30 | 25-Jun-2016 10:40 | 25-Jun-2016 13:45 | 25-Jun-2016 13:55 | 25-Jun-2016 14:05 |
| Compound | CAS Number | LOR | Unit | | EB1617699-006 | EB1617699-007 | EB1617699-008 | EB1617699-009 | EB1617699-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EG094T: Total metals in Fresh water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.14** | **0.13** | **0.04** | **0.06** | **0.15** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M3-M | M3-D | M4-S | M4-M | M4-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 10:30 | 25-Jun-2016 10:40 | 25-Jun-2016 13:45 | 25-Jun-2016 13:55 | 25-Jun-2016 14:05 |
| Compound | CAS Number | LOR | Unit | | EB1617699-006 | EB1617699-007 | EB1617699-008 | EB1617699-009 | EB1617699-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser - Continued** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | **0.10** | **0.02** | <0.01 | <0.01 | **0.04** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | **0.10** | **0.02** | <0.01 | <0.01 | **0.04** |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M3-M | M3-D | M4-S | M4-M | M4-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 10:30 | 25-Jun-2016 10:40 | 25-Jun-2016 13:45 | 25-Jun-2016 13:55 | 25-Jun-2016 14:05 |
| Compound | CAS Number | LOR | Unit | | EB1617699-006 | EB1617699-007 | EB1617699-008 | EB1617699-009 | EB1617699-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **26.2** | **33.1** | **29.3** | **29.3** | **35.7** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **60.5** | **72.7** | **73.9** | **71.4** | **77.0** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M3-M | M3-D | M4-S | M4-M | M4-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 10:30 | 25-Jun-2016 10:40 | 25-Jun-2016 13:45 | 25-Jun-2016 13:55 | 25-Jun-2016 14:05 |
| Compound | CAS Number | LOR | Unit | | EB1617699-006 | EB1617699-007 | EB1617699-008 | EB1617699-009 | EB1617699-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)S: Phenolic Compound Surrogates - Continued** | | | | | | | | | |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | 56.3 | 66.7 | 70.2 | 68.6 | 73.6 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 1 | % | | 80.4 | 92.7 | 97.1 | 95.3 | 101 |
| Anthracene-d10 | 1719-06-8 | 1 | % | | 57.5 | 68.6 | 72.8 | 46.0 | 77.1 |
| 4-Terphenyl-d14 | 1718-51-0 | 1 | % | | 80.7 | 92.6 | 100 | 63.6 | 105 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 2 | % | | 91.3 | 91.2 | 92.4 | 90.2 | 94.6 |
| Toluene-D8 | 2037-26-5 | 2 | % | | 97.6 | 101 | 94.1 | 101 | 98.9 |
| 4-Bromofluorobenzene | 460-00-4 | 2 | % | | 114 | 108 | 105 | 110 | 116 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M5-S | M5-D | M11-S | M11-M | M11-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jun-2016 10:45 | 26-Jun-2016 10:55 | 25-Jun-2016 15:45 | 25-Jun-2016 15:55 | 25-Jun-2016 16:05 |
| Compound | CAS Number | LOR | Unit | | EB1617699-011 | EB1617699-012 | EB1617699-013 | EB1617699-014 | EB1617699-015 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | 1 | 4 | 2 | 5 | 15 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | 5 | 6 | 5 | 8 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 0.7 | 1.4 | 0.9 | 1.4 | 1.3 |
| Barium | 7440-39-3 | 1 | µg/L | | 10 | 6 | 11 | 5 | 5 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | 1 | <1 | <1 |
| Iron | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 4630 | 6990 | 4430 | 7540 | 7600 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 2.2 | 1.7 | 2.3 | 1.8 | 1.8 |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | 25 | 62 | 104 | 19 | 411 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | <0.5 | 1.3 | 0.7 | 1.8 | 2.0 |
| Barium | 7440-39-3 | 1 | µg/L | | 7 | 7 | 11 | 4 | 5 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | 0.3 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Iron | 7439-89-6 | 5 | µg/L | | 104 | 93 | 137 | 33 | 547 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | 0.6 |
| Strontium | 7440-24-6 | 10 | µg/L | | 4490 | 6390 | 4120 | 7080 | 7080 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | <0.5 | <0.5 | 1.3 | <0.5 | 1.3 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M5-S | M5-D | M11-S | M11-M | M11-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jun-2016 10:45 | 26-Jun-2016 10:55 | 25-Jun-2016 15:45 | 25-Jun-2016 15:55 | 25-Jun-2016 16:05 |
| Compound | CAS Number | LOR | Unit | | EB1617699-011 | EB1617699-012 | EB1617699-013 | EB1617699-014 | EB1617699-015 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| **Zinc** | 7440-66-6 | 5 | µg/L | | <5 | <5 | **26** | <5 | <5 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Arsenic** | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Barium** | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Cadmium** | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Chromium** | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Cobalt** | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Copper** | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Iron** | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Lead** | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Strontium** | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Tin** | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Vanadium** | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Zinc** | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EG094T: Total metals in Fresh water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Arsenic** | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Barium** | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Cadmium** | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Chromium** | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Cobalt** | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Copper** | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Iron** | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Lead** | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Strontium** | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Tin** | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Vanadium** | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Zinc** | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| **Ammonia as N** | 7664-41-7 | 0.01 | mg/L | | **0.09** | **0.10** | **0.02** | **0.12** | **0.13** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M5-S | M5-D | M11-S | M11-M | M11-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jun-2016 10:45 | 26-Jun-2016 10:55 | 25-Jun-2016 15:45 | 25-Jun-2016 15:55 | 25-Jun-2016 16:05 |
| Compound | CAS Number | LOR | Unit | | EB1617699-011 | EB1617699-012 | EB1617699-013 | EB1617699-014 | EB1617699-015 |
| | | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser - Continued** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | **0.01** | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | **0.03** | **0.04** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | **0.01** | <0.01 | **0.03** | **0.04** |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | **0.8** |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | **0.8** |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.06** | <0.05 | <0.05 | <0.05 | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | **0.01** | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | **2** | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M5-S | M5-D | M11-S | M11-M | M11-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jun-2016 10:45 | 26-Jun-2016 10:55 | 25-Jun-2016 15:45 | 25-Jun-2016 15:55 | 25-Jun-2016 16:05 |
| Compound | CAS Number | LOR | Unit | | EB1617699-011 | EB1617699-012 | EB1617699-013 | EB1617699-014 | EB1617699-015 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **41.2** | **24.8** | **41.9** | **42.4** | **45.2** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **81.2** | **51.2** | **81.3** | **78.0** | **84.6** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M5-S | M5-D | M11-S | M11-M | M11-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jun-2016 10:45 | 26-Jun-2016 10:55 | 25-Jun-2016 15:45 | 25-Jun-2016 15:55 | 25-Jun-2016 16:05 |
| Compound | CAS Number | LOR | Unit | | EB1617699-011 | EB1617699-012 | EB1617699-013 | EB1617699-014 | EB1617699-015 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)S: Phenolic Compound Surrogates - Continued** | | | | | | | | | |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | 81.0 | 48.5 | 84.0 | 79.8 | 85.6 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 1 | % | | 82.0 | 50.6 | 83.6 | 78.8 | 83.5 |
| Anthracene-d10 | 1719-06-8 | 1 | % | | 82.6 | 51.0 | 83.6 | 79.4 | 82.2 |
| 4-Terphenyl-d14 | 1718-51-0 | 1 | % | | 107 | 67.9 | 111 | 105 | 108 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 2 | % | | 89.7 | 94.7 | 90.8 | 84.1 | 91.9 |
| Toluene-D8 | 2037-26-5 | 2 | % | | 100 | 104 | 101 | 99.2 | 98.3 |
| 4-Bromofluorobenzene | 460-00-4 | 2 | % | | 108 | 110 | 105 | 105 | 104 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M12-S | M12-M | M12-D | DUP1 | DUP2 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 14:45 | 25-Jun-2016 14:55 | 25-Jun-2016 15:05 | [26-Jun-2016] | [26-Jun-2016] |
| Compound | CAS Number | LOR | Unit | | EB1617699-016 | EB1617699-017 | EB1617699-018 | EB1617699-019 | EB1617699-020 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| **Suspended Solids (SS)** | ---- | 1 | mg/L | | **2** | **6** | **9** | **9** | **5** |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | <5 | **6** | **6** | **6** | **7** |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **0.7** | **1.6** | **1.4** | **1.1** | **1.0** |
| **Barium** | 7440-39-3 | 1 | µg/L | | **11** | **5** | **5** | **7** | **6** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Iron** | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | **8** | <5 |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **4540** | **7490** | **7740** | **7000** | **6520** |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **2.3** | **1.7** | **1.9** | **1.9** | **1.8** |
| **Zinc** | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | **25** | **41** | **120** | **62** | **136** |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **0.8** | **1.5** | **1.6** | **1.2** | **1.2** |
| **Barium** | 7440-39-3 | 1 | µg/L | | **11** | **5** | **5** | **7** | **6** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Copper** | 7440-50-8 | 1 | µg/L | | **1** | <1 | <1 | <1 | **1** |
| **Iron** | 7439-89-6 | 5 | µg/L | | **33** | **62** | **209** | **112** | **180** |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **4360** | **6940** | **7750** | **6720** | **6030** |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **1.0** | **0.6** | **0.6** | **0.6** | **0.7** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M12-S | M12-M | M12-D | DUP1 | DUP2 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 14:45 | 25-Jun-2016 14:55 | 25-Jun-2016 15:05 | [26-Jun-2016] | [26-Jun-2016] |
| Compound | CAS Number | LOR | Unit | | EB1617699-016 | EB1617699-017 | EB1617699-018 | EB1617699-019 | EB1617699-020 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EG094T: Total metals in Fresh water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.02** | **0.12** | **0.16** | **0.11** | **0.09** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M12-S | M12-M | M12-D | DUP1 | DUP2 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 14:45 | 25-Jun-2016 14:55 | 25-Jun-2016 15:05 | [26-Jun-2016] | [26-Jun-2016] |
| Compound | CAS Number | LOR | Unit | | EB1617699-016 | EB1617699-017 | EB1617699-018 | EB1617699-019 | EB1617699-020 |
| | | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser - Continued** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | **0.01** |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | **0.03** | **0.04** | **0.04** | **0.03** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | **0.03** | **0.04** | **0.04** | **0.04** |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | **0.02** |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M12-S | M12-M | M12-D | DUP1 | DUP2 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 14:45 | 25-Jun-2016 14:55 | 25-Jun-2016 15:05 | [26-Jun-2016] | [26-Jun-2016] |
| Compound | CAS Number | LOR | Unit | | EB1617699-016 | EB1617699-017 | EB1617699-018 | EB1617699-019 | EB1617699-020 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **39.9** | **39.4** | **50.7** | **28.7** | **33.7** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **84.8** | **78.3** | **91.8** | **63.2** | **86.7** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M12-S | M12-M | M12-D | DUP1 | DUP2 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 14:45 | 25-Jun-2016 14:55 | 25-Jun-2016 15:05 | [26-Jun-2016] | [26-Jun-2016] |
| Compound | CAS Number | LOR | Unit | | EB1617699-016 | EB1617699-017 | EB1617699-018 | EB1617699-019 | EB1617699-020 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)S: Phenolic Compound Surrogates - Continued** | | | | | | | | | |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | 89.0 | 79.8 | 92.6 | 75.9 | 94.7 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 1 | % | | 85.0 | 80.5 | 93.9 | 71.3 | 90.2 |
| Anthracene-d10 | 1719-06-8 | 1 | % | | 84.7 | 78.5 | 88.6 | 73.4 | 84.8 |
| 4-Terphenyl-d14 | 1718-51-0 | 1 | % | | 112 | 103 | 116 | 90.9 | 107 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 2 | % | | 95.5 | 89.0 | 92.0 | 93.2 | 94.6 |
| Toluene-D8 | 2037-26-5 | 2 | % | | 101 | 96.5 | 110 | 106 | 99.5 |
| 4-Bromofluorobenzene | 460-00-4 | 2 | % | | 108 | 105 | 115 | 111 | 102 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | DUP3 | TRIP1 | TRIP2 | DUP4 | M6-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | [28-Jun-2016] | [26-Jun-2016] | [28-Jun-2016] | [03-Jul-2016] | 25-Jun-2016 08:40 |
| Compound | CAS Number | LOR | Unit | | EB1617699-021 | EB1617699-022 | EB1617699-023 | EB1617699-024 | EB1617699-025 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| **Suspended Solids (SS)** | ---- | 1 | mg/L | | **47** | **2** | **10** | **79** | **6** |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | ---- | <5 | <5 | ---- | <5 |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | ---- | **0.8** | <0.5 | ---- | **0.7** |
| **Barium** | 7440-39-3 | 1 | µg/L | | ---- | **10** | **20** | ---- | **11** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | ---- | <0.2 | <0.2 | ---- | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | ---- | <0.5 | <0.5 | ---- | <0.5 |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | ---- | <0.2 | <0.2 | ---- | <0.2 |
| **Copper** | 7440-50-8 | 1 | µg/L | | ---- | <1 | <1 | ---- | **2** |
| **Iron** | 7439-89-6 | 5 | µg/L | | ---- | <5 | **18** | ---- | <5 |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | ---- | <0.2 | <0.2 | ---- | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | ---- | <0.5 | <0.5 | ---- | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | ---- | **4550** | **2090** | ---- | **4520** |
| **Tin** | 7440-31-5 | 5 | µg/L | | ---- | <5 | <5 | ---- | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | ---- | **2.2** | **2.2** | ---- | **2.3** |
| **Zinc** | 7440-66-6 | 5 | µg/L | | ---- | <5 | <5 | ---- | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | ---- | **19** | **369** | ---- | **36** |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | ---- | **0.7** | <0.5 | ---- | **0.7** |
| **Barium** | 7440-39-3 | 1 | µg/L | | ---- | **10** | **22** | ---- | **11** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | ---- | <0.2 | <0.2 | ---- | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | ---- | <0.5 | **0.5** | ---- | <0.5 |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | ---- | <0.2 | **0.4** | ---- | <0.2 |
| **Copper** | 7440-50-8 | 1 | µg/L | | ---- | <1 | <1 | ---- | **2** |
| **Iron** | 7439-89-6 | 5 | µg/L | | ---- | **29** | **674** | ---- | **50** |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | ---- | <0.2 | <0.2 | ---- | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | ---- | <0.5 | **0.8** | ---- | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | ---- | **4430** | **1990** | ---- | **4310** |
| **Tin** | 7440-31-5 | 5 | µg/L | | ---- | <5 | <5 | ---- | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | ---- | **0.8** | **2.0** | ---- | **0.9** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | DUP3 | TRIP1 | TRIP2 | DUP4 | M6-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | [28-Jun-2016] | [26-Jun-2016] | [28-Jun-2016] | [03-Jul-2016] | 25-Jun-2016 08:40 |
| Compound | CAS Number | LOR | Unit | | EB1617699-021 | EB1617699-022 | EB1617699-023 | EB1617699-024 | EB1617699-025 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| **Zinc** | 7440-66-6 | 5 | µg/L | | ---- | <5 | <5 | ---- | <5 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | **20** | ---- | ---- | **36** | ---- |
| **Arsenic** | 7440-38-2 | 0.2 | µg/L | | **0.4** | ---- | ---- | **0.3** | ---- |
| **Barium** | 7440-39-3 | 0.5 | µg/L | | **5.6** | ---- | ---- | **5.6** | ---- |
| **Cadmium** | 7440-43-9 | 0.05 | µg/L | | <0.05 | ---- | ---- | <0.05 | ---- |
| **Chromium** | 7440-47-3 | 0.2 | µg/L | | <0.2 | ---- | ---- | <0.2 | ---- |
| **Cobalt** | 7440-48-4 | 0.1 | µg/L | | <0.1 | ---- | ---- | <0.1 | ---- |
| **Copper** | 7440-50-8 | 0.5 | µg/L | | **0.7** | ---- | ---- | <0.5 | ---- |
| **Iron** | 7439-89-6 | 2 | µg/L | | **62** | ---- | ---- | **52** | ---- |
| **Lead** | 7439-92-1 | 0.1 | µg/L | | <0.1 | ---- | ---- | <0.1 | ---- |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | ---- | ---- | <0.5 | ---- |
| **Strontium** | 7440-24-6 | 1 | µg/L | | **138** | ---- | ---- | **134** | ---- |
| **Tin** | 7440-31-5 | 0.2 | µg/L | | <0.2 | ---- | ---- | <0.2 | ---- |
| **Vanadium** | 7440-62-2 | 0.2 | µg/L | | **1.3** | ---- | ---- | **0.9** | ---- |
| **Zinc** | 7440-66-6 | 1 | µg/L | | <1 | ---- | ---- | <1 | ---- |
| **EG094T: Total metals in Fresh water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | **1640** | ---- | ---- | **2300** | ---- |
| **Arsenic** | 7440-38-2 | 0.2 | µg/L | | **0.7** | ---- | ---- | **0.9** | ---- |
| **Barium** | 7440-39-3 | 0.5 | µg/L | | **10.5** | ---- | ---- | **17.0** | ---- |
| **Cadmium** | 7440-43-9 | 0.05 | µg/L | | <0.05 | ---- | ---- | <0.05 | ---- |
| **Chromium** | 7440-47-3 | 0.2 | µg/L | | **2.4** | ---- | ---- | **2.8** | ---- |
| **Cobalt** | 7440-48-4 | 0.1 | µg/L | | **1.1** | ---- | ---- | **1.5** | ---- |
| **Copper** | 7440-50-8 | 0.5 | µg/L | | **3.0** | ---- | ---- | **3.1** | ---- |
| **Iron** | 7439-89-6 | 2 | µg/L | | **2350** | ---- | ---- | **3520** | ---- |
| **Lead** | 7439-92-1 | 0.1 | µg/L | | **0.6** | ---- | ---- | **1.0** | ---- |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | **2.1** | ---- | ---- | **2.7** | ---- |
| **Strontium** | 7440-24-6 | 1 | µg/L | | **118** | ---- | ---- | **147** | ---- |
| **Tin** | 7440-31-5 | 0.2 | µg/L | | <0.2 | ---- | ---- | <0.2 | ---- |
| **Vanadium** | 7440-62-2 | 0.2 | µg/L | | **6.5** | ---- | ---- | **8.3** | ---- |
| **Zinc** | 7440-66-6 | 1 | µg/L | | **5** | ---- | ---- | **7** | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| **Ammonia as N** | 7664-41-7 | 0.01 | mg/L | | **0.04** | **0.04** | **0.04** | **0.02** | **0.03** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | DUP3 | TRIP1 | TRIP2 | DUP4 | M6-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | [28-Jun-2016] | [26-Jun-2016] | [28-Jun-2016] | [03-Jul-2016] | 25-Jun-2016 08:40 |
| Compound | CAS Number | LOR | Unit | | EB1617699-021 | EB1617699-022 | EB1617699-023 | EB1617699-024 | EB1617699-025 |
| | | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser - Continued** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | **0.01** | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | **0.04** | <0.01 | **0.02** | **0.10** | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | **0.04** | <0.01 | **0.03** | **0.10** | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | <0.05 | **0.07** | **0.06** | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | **0.02** | <0.01 | **0.06** | **0.01** | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <2 | <1 | **1** | <2 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | ---- | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | ---- | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | ---- | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | ---- | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | ---- | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | ---- | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | ---- | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | ---- | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | ---- | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | ---- | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | ---- | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | ---- | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | ---- | <0.5 | <0.5 | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | ---- | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | ---- | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | ---- | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | ---- | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | ---- | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | DUP3 | TRIP1 | TRIP2 | DUP4 | M6-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | [28-Jun-2016] | [26-Jun-2016] | [28-Jun-2016] | [03-Jul-2016] | 25-Jun-2016 08:40 |
| Compound | CAS Number | LOR | Unit | | EB1617699-021 | EB1617699-022 | EB1617699-023 | EB1617699-024 | EB1617699-025 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | ---- | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | ---- | <50 | <50 | <50 | <50 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | ---- | <100 | <100 | <100 | <100 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | ---- | <50 | <50 | <50 | <50 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | ---- | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | ---- | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | ---- | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | ---- | <100 | <100 | <100 | <100 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | ---- | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | ---- | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | ---- | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | ---- | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | ---- | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | ---- | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | ---- | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | ---- | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | ---- | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | ---- | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | ---- | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | ---- | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | ---- | **33.7** | **37.8** | **30.0** | **37.7** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | ---- | **75.6** | **82.7** | **67.9** | **75.1** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | DUP3 | TRIP1 | TRIP2 | DUP4 | M6-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | [28-Jun-2016] | [26-Jun-2016] | [28-Jun-2016] | [03-Jul-2016] | 25-Jun-2016 08:40 |
| Compound | CAS Number | LOR | Unit | | EB1617699-021 | EB1617699-022 | EB1617699-023 | EB1617699-024 | EB1617699-025 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)S: Phenolic Compound Surrogates - Continued** | | | | | | | | | |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | ---- | 77.4 | 85.3 | 73.3 | 80.6 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 1 | % | | ---- | 83.0 | 85.5 | 74.1 | 81.6 |
| Anthracene-d10 | 1719-06-8 | 1 | % | | ---- | 77.0 | 80.5 | 77.5 | 75.2 |
| 4-Terphenyl-d14 | 1718-51-0 | 1 | % | | ---- | 104 | 107 | 98.7 | 99.5 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 2 | % | | ---- | 91.3 | 92.5 | 88.8 | 92.6 |
| Toluene-D8 | 2037-26-5 | 2 | % | | ---- | 104 | 98.6 | 102 | 100 |
| 4-Bromofluorobenzene | 460-00-4 | 2 | % | | ---- | 108 | 113 | 105 | 108 |

## Analytical Results

Sub-Matrix: **WATER**
(Matrix: **WATER**)

| Compound | CAS Number | LOR | Unit | Client sample ID | M6-D | M7-S | M7-D | M8-S | M8-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 09:00 | 26-Jun-2016 13:10 | 26-Jun-2016 13:20 | 26-Jun-2016 09:30 | 26-Jun-2016 09:40 |
| | | | | | EB1617699-026 | EB1617699-027 | EB1617699-028 | EB1617699-029 | EB1617699-030 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| **Suspended Solids (SS)** | ---- | 1 | mg/L | | **15** | **4** | **9** | **3** | **4** |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | **8** | **6** | **7** | **7** | **5** |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **1.5** | **0.8** | **0.8** | **0.7** | **1.4** |
| **Barium** | 7440-39-3 | 1 | µg/L | | **6** | **10** | **6** | **10** | **6** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | **1** | **1** |
| **Iron** | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **7520** | **4620** | **5850** | **4640** | **6960** |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **2.1** | **1.9** | **1.6** | **2.2** | **1.9** |
| **Zinc** | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | **487** | **150** | **116** | **37** | **98** |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **1.4** | **0.7** | **1.0** | **0.8** | **1.6** |
| **Barium** | 7440-39-3 | 1 | µg/L | | **6** | **10** | **7** | **11** | **8** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | **0.7** | <0.5 | <0.5 | <0.5 | <0.5 |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | **0.4** | <0.2 | <0.2 | <0.2 | <0.2 |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | **1** |
| **Iron** | 7439-89-6 | 5 | µg/L | | **591** | **198** | **162** | **46** | **135** |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | **0.9** | <0.5 | <0.5 | <0.5 | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **7000** | **4260** | **5920** | **4380** | **7770** |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **1.5** | **1.1** | **0.6** | **0.6** | **0.7** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M6-D | M7-S | M7-D | M8-S | M8-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 09:00 | 26-Jun-2016 13:10 | 26-Jun-2016 13:20 | 26-Jun-2016 09:30 | 26-Jun-2016 09:40 |
| Compound | CAS Number | LOR | Unit | | EB1617699-026 | EB1617699-027 | EB1617699-028 | EB1617699-029 | EB1617699-030 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | **13** | <5 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EG094T: Total metals in Fresh water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.14** | **0.03** | **0.07** | **0.03** | **0.06** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M6-D | M7-S | M7-D | M8-S | M8-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 09:00 | 26-Jun-2016 13:10 | 26-Jun-2016 13:20 | 26-Jun-2016 09:30 | 26-Jun-2016 09:40 |
| Compound | CAS Number | LOR | Unit | | EB1617699-026 | EB1617699-027 | EB1617699-028 | EB1617699-029 | EB1617699-030 |
| | | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser - Continued** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | **0.01** | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | **0.05** | <0.01 | **0.06** | <0.01 | **0.05** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | **0.05** | <0.01 | **0.07** | <0.01 | **0.05** |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | <0.05 | <0.05 | **0.06** | **0.06** |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | **0.01** | <0.01 | **0.01** | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | **2** | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | ---- | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | ---- | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | ---- | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | ---- | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M6-D | M7-S | M7-D | M8-S | M8-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 09:00 | 26-Jun-2016 13:10 | 26-Jun-2016 13:20 | 26-Jun-2016 09:30 | 26-Jun-2016 09:40 |
| Compound | CAS Number | LOR | Unit | | EB1617699-026 | EB1617699-027 | EB1617699-028 | EB1617699-029 | EB1617699-030 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | ---- | <50 | <50 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | ---- | <100 | <100 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | ---- | <50 | <50 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | ---- | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | ---- | <100 | <100 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | ---- | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | ---- | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | ---- | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | ---- | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **44.6** | **47.4** | ---- | **41.3** | **40.2** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **79.0** | **88.4** | ---- | **76.8** | **72.5** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M6-D | M7-S | M7-D | M8-S | M8-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 09:00 | 26-Jun-2016 13:10 | 26-Jun-2016 13:20 | 26-Jun-2016 09:30 | 26-Jun-2016 09:40 |
| Compound | CAS Number | LOR | Unit | | EB1617699-026 | EB1617699-027 | EB1617699-028 | EB1617699-029 | EB1617699-030 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)S: Phenolic Compound Surrogates - Continued** | | | | | | | | | |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | 83.2 | 95.8 | ---- | 80.1 | 74.7 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 1 | % | | 86.0 | 83.4 | ---- | 85.2 | 75.8 |
| Anthracene-d10 | 1719-06-8 | 1 | % | | 77.2 | 83.2 | ---- | 77.9 | 73.3 |
| 4-Terphenyl-d14 | 1718-51-0 | 1 | % | | 104 | 117 | ---- | 108 | 105 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 2 | % | | 89.8 | 94.3 | 91.3 | 87.6 | 84.5 |
| Toluene-D8 | 2037-26-5 | 2 | % | | 97.9 | 101 | 104 | 100 | 96.4 |
| 4-Bromofluorobenzene | 460-00-4 | 2 | % | | 105 | 112 | 106 | 114 | 110 |

## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

| Compound | CAS Number | LOR | Unit | Client sample ID | M9-S | M9-M | M9-D | M10-S | M10-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 12:00 | 25-Jun-2016 12:10 | 25-Jun-2016 12:20 | 25-Jun-2016 12:50 | 25-Jun-2016 13:10 |
| | | | | | EB1617699-031 | EB1617699-032 | EB1617699-033 | EB1617699-034 | EB1617699-035 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| **Suspended Solids (SS)** | ---- | 1 | mg/L | | **5** | **4** | **4** | **2** | **6** |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | **5** | <5 | <5 | <5 | **5** |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | <0.5 | **1.6** | **1.3** | **0.8** | **1.3** |
| **Barium** | 7440-39-3 | 1 | µg/L | | **9** | **5** | **4** | **11** | **5** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Copper** | 7440-50-8 | 1 | µg/L | | **1** | <1 | <1 | <1 | <1 |
| **Iron** | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **3070** | **7350** | **7740** | **4210** | **7670** |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **2.2** | **1.7** | **2.0** | **2.3** | **1.8** |
| **Zinc** | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | **153** | **8** | **23** | **14** | **72** |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | <0.5 | **1.4** | **1.4** | <0.5 | **1.5** |
| **Barium** | 7440-39-3 | 1 | µg/L | | **10** | **5** | **4** | **11** | **5** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | **2** | **2** | <1 | **2** |
| **Iron** | 7439-89-6 | 5 | µg/L | | **230** | **25** | **44** | **28** | **104** |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **2860** | **6850** | **7300** | **3970** | **7170** |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **1.2** | <0.5 | <0.5 | **1.0** | **0.9** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M9-S | M9-M | M9-D | M10-S | M10-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 12:00 | 25-Jun-2016 12:10 | 25-Jun-2016 12:20 | 25-Jun-2016 12:50 | 25-Jun-2016 13:10 |
| Compound | CAS Number | LOR | Unit | | EB1617699-031 | EB1617699-032 | EB1617699-033 | EB1617699-034 | EB1617699-035 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EG094T: Total metals in Fresh water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.03** | **0.13** | **0.13** | **0.03** | **0.12** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M9-S | M9-M | M9-D | M10-S | M10-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 12:00 | 25-Jun-2016 12:10 | 25-Jun-2016 12:20 | 25-Jun-2016 12:50 | 25-Jun-2016 13:10 |
| Compound | CAS Number | LOR | Unit | | EB1617699-031 | EB1617699-032 | EB1617699-033 | EB1617699-034 | EB1617699-035 |
| | | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser - Continued** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | **0.03** | <0.01 | **0.06** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | **0.03** | <0.01 | **0.06** |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | **0.11** | <0.05 | <0.05 | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | **0.01** | <0.01 | <0.01 | <0.01 | **0.02** |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | **1** | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M9-S | M9-M | M9-D | M10-S | M10-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 12:00 | 25-Jun-2016 12:10 | 25-Jun-2016 12:20 | 25-Jun-2016 12:50 | 25-Jun-2016 13:10 |
| Compound | CAS Number | LOR | Unit | | EB1617699-031 | EB1617699-032 | EB1617699-033 | EB1617699-034 | EB1617699-035 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **34.9** | **34.6** | **42.6** | **37.0** | **40.4** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **78.6** | **70.8** | **86.7** | **87.2** | **84.8** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M9-S | M9-M | M9-D | M10-S | M10-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 12:00 | 25-Jun-2016 12:10 | 25-Jun-2016 12:20 | 25-Jun-2016 12:50 | 25-Jun-2016 13:10 |
| Compound | CAS Number | LOR | Unit | | EB1617699-031 | EB1617699-032 | EB1617699-033 | EB1617699-034 | EB1617699-035 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)S: Phenolic Compound Surrogates - Continued** | | | | | | | | | |
| **2.4.6-Tribromophenol** | 118-79-6 | 1 | % | | **87.6** | **72.7** | **89.1** | **89.6** | **86.2** |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 1 | % | | **82.4** | **70.9** | **78.1** | **83.0** | **82.4** |
| **Anthracene-d10** | 1719-06-8 | 1 | % | | **83.5** | **71.8** | **85.6** | **83.7** | **78.6** |
| **4-Terphenyl-d14** | 1718-51-0 | 1 | % | | **114** | **96.1** | **112** | **112** | **101** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 2 | % | | **89.7** | **96.4** | **91.8** | **88.5** | **85.7** |
| **Toluene-D8** | 2037-26-5 | 2 | % | | **104** | **99.4** | **105** | **101** | **104** |
| **4-Bromofluorobenzene** | 460-00-4 | 2 | % | | **107** | **106** | **111** | **106** | **113** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | DUP5 | M25-S | M25-M | M25-D | M31-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | [05-Jul-2016] | 04-Jul-2016 14:00 | 04-Jul-2016 14:10 | 04-Jul-2016 14:20 | 05-Jul-2016 11:30 |
| Compound | CAS Number | LOR | Unit | | EB1617699-036 | EB1617699-037 | EB1617699-038 | EB1617699-039 | EB1617699-040 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | 1 | 2 | 6 | 14 | 8 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | 10 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.4 | 1.5 | 1.5 | 1.6 | 1.6 |
| Barium | 7440-39-3 | 1 | µg/L | | 4 | 5 | 5 | 4 | 5 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Iron | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | 21 | 14 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 7670 | 7330 | 7340 | 7440 | 7420 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 1.7 | 2.4 | 1.7 | 1.7 | 1.8 |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | 9 | 45 | 476 | 30 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.5 | 1.8 | 1.8 | 2.2 | 1.9 |
| Barium | 7440-39-3 | 1 | µg/L | | 4 | 5 | 5 | 5 | 5 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | 1.0 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | 0.4 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | 3 | 3 | 2 | 2 |
| Iron | 7439-89-6 | 5 | µg/L | | 15 | 15 | 69 | 799 | 51 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | 0.8 | 1.4 | 1.6 | 0.7 |
| Strontium | 7440-24-6 | 10 | µg/L | | 7230 | 7120 | 7150 | 7190 | 7040 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | <0.5 | 1.3 | 1.6 | 3.0 | 1.6 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | DUP5 | M25-S | M25-M | M25-D | M31-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | [05-Jul-2016] | 04-Jul-2016 14:00 | 04-Jul-2016 14:10 | 04-Jul-2016 14:20 | 05-Jul-2016 11:30 |
| Compound | CAS Number | LOR | Unit | | EB1617699-036 | EB1617699-037 | EB1617699-038 | EB1617699-039 | EB1617699-040 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EG094T: Total metals in Fresh water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.14** | **0.14** | **0.13** | **0.15** | **0.06** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | DUP5 | M25-S | M25-M | M25-D | M31-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | [05-Jul-2016] | 04-Jul-2016 14:00 | 04-Jul-2016 14:10 | 04-Jul-2016 14:20 | 05-Jul-2016 11:30 |
| Compound | CAS Number | LOR | Unit | | EB1617699-036 | EB1617699-037 | EB1617699-038 | EB1617699-039 | EB1617699-040 |
| | | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser - Continued** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | **0.03** | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | **0.03** | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | DUP5 | M25-S | M25-M | M25-D | M31-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | [05-Jul-2016] | 04-Jul-2016 14:00 | 04-Jul-2016 14:10 | 04-Jul-2016 14:20 | 05-Jul-2016 11:30 |
| Compound | CAS Number | LOR | Unit | | EB1617699-036 | EB1617699-037 | EB1617699-038 | EB1617699-039 | EB1617699-040 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **38.4** | **31.7** | **49.6** | **50.2** | **46.3** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **80.6** | **75.2** | **93.6** | **82.2** | **79.0** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | DUP5 | M25-S | M25-M | M25-D | M31-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | [05-Jul-2016] | 04-Jul-2016 14:00 | 04-Jul-2016 14:10 | 04-Jul-2016 14:20 | 05-Jul-2016 11:30 |
| Compound | CAS Number | LOR | Unit | | EB1617699-036 | EB1617699-037 | EB1617699-038 | EB1617699-039 | EB1617699-040 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)S: Phenolic Compound Surrogates - Continued** | | | | | | | | | |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | 75.1 | 76.0 | 82.7 | 81.2 | 74.8 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 1 | % | | 80.6 | 76.5 | 85.9 | 87.1 | 82.5 |
| Anthracene-d10 | 1719-06-8 | 1 | % | | 74.3 | 71.6 | 84.4 | 78.8 | 73.3 |
| 4-Terphenyl-d14 | 1718-51-0 | 1 | % | | 99.4 | 94.6 | 114 | 102 | 99.5 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 2 | % | | 91.5 | 94.1 | 93.5 | 98.6 | 89.4 |
| Toluene-D8 | 2037-26-5 | 2 | % | | 98.7 | 110 | 102 | 99.2 | 101 |
| 4-Bromofluorobenzene | 460-00-4 | 2 | % | | 102 | 114 | 106 | 108 | 111 |

## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

| Compound | CAS Number | LOR | Unit | Client sample ID | M31-M | M31-D | M37-S | M37-M | M37-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 05-Jul-2016 11:40 | 05-Jul-2016 11:50 | 05-Jul-2016 16:30 | 05-Jul-2016 16:40 | 05-Jul-2016 16:50 |
| | | | | | EB1617699-041 | EB1617699-042 | EB1617699-043 | EB1617699-044 | EB1617699-045 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| **Suspended Solids (SS)** | ---- | 1 | mg/L | | **6** | **1** | **4** | **6** | **4** |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **1.6** | **1.6** | **1.4** | **1.4** | **1.5** |
| **Barium** | 7440-39-3 | 1 | µg/L | | **4** | **4** | **4** | **4** | **4** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Iron** | 7439-89-6 | 5 | µg/L | | **6** | **8** | <5 | <5 | <5 |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **7460** | **7400** | **7430** | **7510** | **7550** |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **1.6** | **1.5** | **1.1** | **0.9** | **1.4** |
| **Zinc** | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | **21** | **37** | <5 | <5 | **15** |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **1.8** | **2.0** | **1.9** | **1.9** | **1.9** |
| **Barium** | 7440-39-3 | 1 | µg/L | | **5** | **4** | **5** | **5** | **4** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | <0.2 | **0.3** | <0.2 | <0.2 | <0.2 |
| **Copper** | 7440-50-8 | 1 | µg/L | | **2** | **2** | **1** | **1** | **1** |
| **Iron** | 7439-89-6 | 5 | µg/L | | **43** | **66** | **42** | **17** | **37** |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | **0.6** | <0.5 | <0.5 | <0.5 | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **7150** | **7240** | **7190** | **7210** | **7170** |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **1.4** | **1.4** | **1.3** | **1.2** | **1.2** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M31-M | M31-D | M37-S | M37-M | M37-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 05-Jul-2016 11:40 | 05-Jul-2016 11:50 | 05-Jul-2016 16:30 | 05-Jul-2016 16:40 | 05-Jul-2016 16:50 |
| Compound | CAS Number | LOR | Unit | | EB1617699-041 | EB1617699-042 | EB1617699-043 | EB1617699-044 | EB1617699-045 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EG094T: Total metals in Fresh water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.15** | **0.15** | **0.13** | **0.14** | **0.17** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M31-M | M31-D | M37-S | M37-M | M37-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 05-Jul-2016 11:40 | 05-Jul-2016 11:50 | 05-Jul-2016 16:30 | 05-Jul-2016 16:40 | 05-Jul-2016 16:50 |
| Compound | CAS Number | LOR | Unit | | EB1617699-041 | EB1617699-042 | EB1617699-043 | EB1617699-044 | EB1617699-045 |
| | | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser - Continued** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | **0.03** | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M31-M | M31-D | M37-S | M37-M | M37-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 05-Jul-2016 11:40 | 05-Jul-2016 11:50 | 05-Jul-2016 16:30 | 05-Jul-2016 16:40 | 05-Jul-2016 16:50 |
| Compound | CAS Number | LOR | Unit | | EB1617699-041 | EB1617699-042 | EB1617699-043 | EB1617699-044 | EB1617699-045 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **30.6** | **40.6** | **50.8** | **41.8** | **35.9** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **52.7** | **75.2** | **87.0** | **77.8** | **67.1** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M31-M | M31-D | M37-S | M37-M | M37-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 05-Jul-2016 11:40 | 05-Jul-2016 11:50 | 05-Jul-2016 16:30 | 05-Jul-2016 16:40 | 05-Jul-2016 16:50 |
| Compound | CAS Number | LOR | Unit | | EB1617699-041 | EB1617699-042 | EB1617699-043 | EB1617699-044 | EB1617699-045 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)S: Phenolic Compound Surrogates - Continued** | | | | | | | | | |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | 54.8 | 73.1 | 87.8 | 74.6 | 62.6 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 1 | % | | 56.5 | 78.0 | 95.8 | 83.1 | 70.8 |
| Anthracene-d10 | 1719-06-8 | 1 | % | | 51.7 | 70.4 | 86.4 | 78.8 | 65.2 |
| 4-Terphenyl-d14 | 1718-51-0 | 1 | % | | 71.4 | 90.1 | 115 | 102 | 86.8 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 2 | % | | 88.7 | 86.7 | 92.2 | 95.5 | 92.6 |
| Toluene-D8 | 2037-26-5 | 2 | % | | 100 | 102 | 97.8 | 104 | 101 |
| 4-Bromofluorobenzene | 460-00-4 | 2 | % | | 109 | 112 | 108 | 112 | 113 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M43-S | M43-M | M43-D | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 06-Jul-2016 11:00 | 06-Jul-2016 11:10 | 06-Jul-2016 11:20 | 27-Jun-2016 09:00 | 27-Jun-2016 13:30 |
| Compound | CAS Number | LOR | Unit | | EB1617699-046 | EB1617699-047 | EB1617699-048 | EB1617699-049 | EB1617699-050 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | **2** | **1** | **5** | **62** | **66** |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | **26** | <5 | <5 | ---- | ---- |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | **1.4** | **1.5** | **1.6** | ---- | ---- |
| Barium | 7440-39-3 | 1 | µg/L | | **5** | **4** | **4** | ---- | ---- |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | ---- | ---- |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | ---- | ---- |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | ---- | ---- |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | ---- | ---- |
| Iron | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | ---- | ---- |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | ---- | ---- |
| Strontium | 7440-24-6 | 10 | µg/L | | **7450** | **7580** | **7660** | ---- | ---- |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | ---- | ---- |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | **1.5** | **1.1** | **1.2** | ---- | ---- |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | ---- | ---- |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | **29** | **18** | **71** | ---- | ---- |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | **1.8** | **2.0** | **2.0** | ---- | ---- |
| Barium | 7440-39-3 | 1 | µg/L | | **6** | **5** | **5** | ---- | ---- |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | ---- | ---- |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | ---- | ---- |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | ---- | ---- |
| Copper | 7440-50-8 | 1 | µg/L | | **1** | **1** | **1** | ---- | ---- |
| Iron | 7439-89-6 | 5 | µg/L | | **49** | **33** | **132** | ---- | ---- |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | **0.7** | **1.6** | <0.5 | ---- | ---- |
| Strontium | 7440-24-6 | 10 | µg/L | | **7040** | **7160** | **7170** | ---- | ---- |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | ---- | ---- |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | **1.3** | **1.2** | **1.5** | ---- | ---- |

## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

| Compound | CAS Number | LOR | Unit | Client sample ID | M43-S | M43-M | M43-D | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 06-Jul-2016 11:00 | 06-Jul-2016 11:10 | 06-Jul-2016 11:20 | 27-Jun-2016 09:00 | 27-Jun-2016 13:30 |
| | | | | | EB1617699-046 | EB1617699-047 | EB1617699-048 | EB1617699-049 | EB1617699-050 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| **Zinc** | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | ---- | ---- |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | **16** | **18** |
| **Arsenic** | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | **0.5** | **0.4** |
| **Barium** | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | **5.3** | **5.5** |
| **Cadmium** | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | <0.05 | <0.05 |
| **Chromium** | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | <0.2 | <0.2 |
| **Cobalt** | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | <0.1 | <0.1 |
| **Copper** | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | **0.7** | **0.7** |
| **Iron** | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | **20** | **28** |
| **Lead** | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | <0.1 | <0.1 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | <0.5 | <0.5 |
| **Strontium** | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | **105** | **111** |
| **Tin** | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | <0.2 | <0.2 |
| **Vanadium** | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | **2.4** | **2.5** |
| **Zinc** | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | <1 | <1 |
| **EG094T: Total metals in Fresh water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | **2990** | **2620** |
| **Arsenic** | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | **1.1** | **0.9** |
| **Barium** | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | **16.5** | **16.8** |
| **Cadmium** | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | <0.05 | <0.05 |
| **Chromium** | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | **4.5** | **4.0** |
| **Cobalt** | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | **1.8** | **1.6** |
| **Copper** | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | **5.1** | **4.9** |
| **Iron** | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | **4270** | **3850** |
| **Lead** | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | **1.0** | **1.0** |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | **4.0** | **3.4** |
| **Strontium** | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | **123** | **118** |
| **Tin** | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | <0.2 | <0.2 |
| **Vanadium** | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | **11.0** | **9.8** |
| **Zinc** | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | **9** | **6** |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| **Ammonia as N** | 7664-41-7 | 0.01 | mg/L | | **0.16** | **0.15** | **0.14** | <0.01 | <0.01 |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M43-S | M43-M | M43-D | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 06-Jul-2016 11:00 | 06-Jul-2016 11:10 | 06-Jul-2016 11:20 | 27-Jun-2016 09:00 | 27-Jun-2016 13:30 |
| Compound | CAS Number | LOR | Unit | | EB1617699-046 | EB1617699-047 | EB1617699-048 | EB1617699-049 | EB1617699-050 |
| | | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser - Continued** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | **0.05** | **0.04** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | **0.05** | **0.04** |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | <0.05 | <0.05 | **0.05** | **0.10** |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | **0.02** | **0.02** |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <2 | <2 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M43-S | M43-M | M43-D | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 06-Jul-2016 11:00 | 06-Jul-2016 11:10 | 06-Jul-2016 11:20 | 27-Jun-2016 09:00 | 27-Jun-2016 13:30 |
| Compound | CAS Number | LOR | Unit | | EB1617699-046 | EB1617699-047 | EB1617699-048 | EB1617699-049 | EB1617699-050 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | ---- |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | ---- |
| C10 - C14 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | <50 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | <100 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | ---- |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | ---- |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | ---- |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | <100 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | ---- |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | ---- |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | ---- |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | ---- |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | ---- |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | ---- |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | ---- |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | ---- |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | ---- |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **39.1** | **43.0** | **44.5** | **30.0** | **34.5** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **80.0** | **76.0** | **81.2** | **63.8** | **71.3** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M43-S | M43-M | M43-D | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 06-Jul-2016 11:00 | 06-Jul-2016 11:10 | 06-Jul-2016 11:20 | 27-Jun-2016 09:00 | 27-Jun-2016 13:30 |
| Compound | CAS Number | LOR | Unit | | EB1617699-046 | EB1617699-047 | EB1617699-048 | EB1617699-049 | EB1617699-050 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)S: Phenolic Compound Surrogates - Continued** | | | | | | | | | |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | 77.6 | 75.4 | 81.4 | 68.9 | 76.5 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 1 | % | | 83.2 | 80.4 | 87.4 | 78.2 | 87.0 |
| Anthracene-d10 | 1719-06-8 | 1 | % | | 75.9 | 73.6 | 81.6 | 68.3 | 76.2 |
| 4-Terphenyl-d14 | 1718-51-0 | 1 | % | | 101 | 95.3 | 119 | 93.3 | 105 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 2 | % | | 86.8 | 97.2 | 87.6 | 90.8 | ---- |
| Toluene-D8 | 2037-26-5 | 2 | % | | 103 | 103 | 103 | 106 | ---- |
| 4-Bromofluorobenzene | 460-00-4 | 2 | % | | 117 | 108 | 110 | 104 | ---- |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | 21 | 22 | 20 | 23-b | 24-b |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 28-Jun-2016 09:00 | 28-Jun-2016 14:00 | 29-Jun-2016 09:00 | 02-Jul-2016 09:00 | 02-Jul-2016 14:00 |
| Compound | CAS Number | LOR | Unit | | EB1617699-051 | EB1617699-052 | EB1617699-053 | EB1617699-054 | EB1617699-055 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| **Suspended Solids (SS)** | ---- | 1 | mg/L | | **9** | **49** | **8** | **49** | **40** |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | <5 | ---- | <5 | <5 | ---- |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | <0.5 | ---- | <0.5 | <0.5 | ---- |
| **Barium** | 7440-39-3 | 1 | µg/L | | **20** | ---- | **17** | **34** | ---- |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | ---- | <0.2 | <0.2 | ---- |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | ---- | <0.5 | <0.5 | ---- |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | <0.2 | ---- | <0.2 | <0.2 | ---- |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | ---- | <1 | <1 | ---- |
| **Iron** | 7439-89-6 | 5 | µg/L | | **21** | ---- | **12** | <5 | ---- |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | ---- | <0.2 | <0.2 | ---- |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | ---- | <0.5 | <0.5 | ---- |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **2090** | ---- | **2870** | **1270** | ---- |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | ---- | <5 | <5 | ---- |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **0.7** | ---- | <0.5 | **0.5** | ---- |
| **Zinc** | 7440-66-6 | 5 | µg/L | | <5 | ---- | <5 | <5 | ---- |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | **281** | ---- | **166** | **1210** | ---- |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | <0.5 | ---- | <0.5 | <0.5 | ---- |
| **Barium** | 7440-39-3 | 1 | µg/L | | **18** | ---- | **16** | **36** | ---- |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | ---- | <0.2 | <0.2 | ---- |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | ---- | <0.5 | **1.9** | ---- |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | **0.4** | ---- | **0.4** | **1.1** | ---- |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | ---- | <1 | <1 | ---- |
| **Iron** | 7439-89-6 | 5 | µg/L | | **789** | ---- | **720** | **2330** | ---- |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | ---- | <0.2 | **0.5** | ---- |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | ---- | <0.5 | **1.8** | ---- |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **1560** | ---- | **2530** | **1220** | ---- |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | ---- | <5 | <5 | ---- |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **1.0** | ---- | <0.5 | **4.6** | ---- |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | 21 | 22 | 20 | 23-b | 24-b |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 28-Jun-2016 09:00 | 28-Jun-2016 14:00 | 29-Jun-2016 09:00 | 02-Jul-2016 09:00 | 02-Jul-2016 14:00 |
| Compound | CAS Number | LOR | Unit | | EB1617699-051 | EB1617699-052 | EB1617699-053 | EB1617699-054 | EB1617699-055 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| **Zinc** | 7440-66-6 | 5 | µg/L | | <5 | ---- | <5 | <5 | ---- |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | ---- | **11** | ---- | ---- | **9** |
| **Arsenic** | 7440-38-2 | 0.2 | µg/L | | ---- | **0.5** | ---- | ---- | **0.5** |
| **Barium** | 7440-39-3 | 0.5 | µg/L | | ---- | **5.9** | ---- | ---- | **6.7** |
| **Cadmium** | 7440-43-9 | 0.05 | µg/L | | ---- | <0.05 | ---- | ---- | <0.05 |
| **Chromium** | 7440-47-3 | 0.2 | µg/L | | ---- | <0.2 | ---- | ---- | <0.2 |
| **Cobalt** | 7440-48-4 | 0.1 | µg/L | | ---- | <0.1 | ---- | ---- | <0.1 |
| **Copper** | 7440-50-8 | 0.5 | µg/L | | ---- | **0.8** | ---- | ---- | **0.6** |
| **Iron** | 7439-89-6 | 2 | µg/L | | ---- | **13** | ---- | ---- | **17** |
| **Lead** | 7439-92-1 | 0.1 | µg/L | | ---- | <0.1 | ---- | ---- | <0.1 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | ---- | <0.5 | ---- | ---- | <0.5 |
| **Strontium** | 7440-24-6 | 1 | µg/L | | ---- | **140** | ---- | ---- | **115** |
| **Tin** | 7440-31-5 | 0.2 | µg/L | | ---- | <0.2 | ---- | ---- | <0.2 |
| **Vanadium** | 7440-62-2 | 0.2 | µg/L | | ---- | **2.4** | ---- | ---- | **2.4** |
| **Zinc** | 7440-66-6 | 1 | µg/L | | ---- | <1 | ---- | ---- | <1 |
| **EG094T: Total metals in Fresh water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | ---- | **1510** | ---- | ---- | **1610** |
| **Arsenic** | 7440-38-2 | 0.2 | µg/L | | ---- | **0.7** | ---- | ---- | **0.8** |
| **Barium** | 7440-39-3 | 0.5 | µg/L | | ---- | **10.2** | ---- | ---- | **13.4** |
| **Cadmium** | 7440-43-9 | 0.05 | µg/L | | ---- | <0.05 | ---- | ---- | <0.05 |
| **Chromium** | 7440-47-3 | 0.2 | µg/L | | ---- | **2.4** | ---- | ---- | **2.4** |
| **Cobalt** | 7440-48-4 | 0.1 | µg/L | | ---- | **1.0** | ---- | ---- | **1.0** |
| **Copper** | 7440-50-8 | 0.5 | µg/L | | ---- | **3.2** | ---- | ---- | **2.8** |
| **Iron** | 7439-89-6 | 2 | µg/L | | ---- | **2370** | ---- | ---- | **2420** |
| **Lead** | 7439-92-1 | 0.1 | µg/L | | ---- | **0.6** | ---- | ---- | **0.6** |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | ---- | **2.2** | ---- | ---- | **2.1** |
| **Strontium** | 7440-24-6 | 1 | µg/L | | ---- | **119** | ---- | ---- | **125** |
| **Tin** | 7440-31-5 | 0.2 | µg/L | | ---- | <0.2 | ---- | ---- | <0.2 |
| **Vanadium** | 7440-62-2 | 0.2 | µg/L | | ---- | **6.7** | ---- | ---- | **7.2** |
| **Zinc** | 7440-66-6 | 1 | µg/L | | ---- | **4** | ---- | ---- | **4** |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| **Ammonia as N** | 7664-41-7 | 0.01 | mg/L | | **0.04** | **0.02** | **0.04** | **0.07** | **0.02** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | 21 | 22 | 20 | 23-b | 24-b |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 28-Jun-2016 09:00 | 28-Jun-2016 14:00 | 29-Jun-2016 09:00 | 02-Jul-2016 09:00 | 02-Jul-2016 14:00 |
| Compound | CAS Number | LOR | Unit | | EB1617699-051 | EB1617699-052 | EB1617699-053 | EB1617699-054 | EB1617699-055 |
| | | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser - Continued** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | **0.03** | **0.04** | **0.01** | **0.12** | **0.03** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | **0.03** | **0.04** | **0.01** | **0.12** | **0.03** |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.06** | <0.05 | <0.05 | <0.05 | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | **0.07** | **0.08** | **0.03** | **0.03** | **0.02** |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <2 | **2** | <2 | <2 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Acenaphthene | 83-32-9 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Fluorene | 86-73-7 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Phenanthrene | 85-01-8 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Anthracene | 120-12-7 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Fluoranthene | 206-44-0 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Pyrene | 129-00-0 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Chrysene | 218-01-9 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | 21 | 22 | 20 | 23-b | 24-b |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 28-Jun-2016 09:00 | 28-Jun-2016 14:00 | 29-Jun-2016 09:00 | 02-Jul-2016 09:00 | 02-Jul-2016 14:00 |
| Compound | CAS Number | LOR | Unit | | EB1617699-051 | EB1617699-052 | EB1617699-053 | EB1617699-054 | EB1617699-055 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | ---- | <20 | ---- | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C10 - C14 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | ---- | <20 | ---- | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | ---- | <20 | ---- | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | ---- | <1 | ---- | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | ---- | <2 | ---- | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | ---- | <2 | ---- | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | ---- | <2 | ---- | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | ---- | <2 | ---- | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | ---- | <2 | ---- | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | ---- | <1 | ---- | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | ---- | <5 | ---- | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | ---- | ---- | ---- | ---- | ---- |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | ---- | ---- | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | 21 | 22 | 20 | 23-b | 24-b |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 28-Jun-2016 09:00 | 28-Jun-2016 14:00 | 29-Jun-2016 09:00 | 02-Jul-2016 09:00 | 02-Jul-2016 14:00 |
| Compound | CAS Number | LOR | Unit | | EB1617699-051 | EB1617699-052 | EB1617699-053 | EB1617699-054 | EB1617699-055 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)S: Phenolic Compound Surrogates - Continued** | | | | | | | | | |
| **2.4.6-Tribromophenol** | 118-79-6 | 1 | % | | ---- | ---- | ---- | ---- | ---- |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 1 | % | | ---- | ---- | ---- | ---- | ---- |
| **Anthracene-d10** | 1719-06-8 | 1 | % | | ---- | ---- | ---- | ---- | ---- |
| **4-Terphenyl-d14** | 1718-51-0 | 1 | % | | ---- | ---- | ---- | ---- | ---- |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 2 | % | | **84.3** | ---- | **86.3** | ---- | **89.0** |
| **Toluene-D8** | 2037-26-5 | 2 | % | | **104** | ---- | **95.7** | ---- | **102** |
| **4-Bromofluorobenzene** | 460-00-4 | 2 | % | | **110** | ---- | **107** | ---- | **108** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | 16 | 17 | 28 | 29 | TRIP3 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 03-Jul-2016 10:00 | 03-Jul-2016 14:00 | 07-Jul-2016 10:00 | 07-Jul-2016 10:30 | [07-Jul-2016] |
| Compound | CAS Number | LOR | Unit | | EB1617699-056 | EB1617699-057 | EB1617699-058 | EB1617699-059 | EB1617699-060 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | 55 | 74 | 9 | 10 | 8 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | ---- | <5 | 7 | <5 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | ---- | ---- | 1.6 | 1.4 | 1.6 |
| Barium | 7440-39-3 | 1 | µg/L | | ---- | ---- | 6 | 9 | 5 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | ---- | ---- | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | ---- | ---- | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | ---- | ---- | <0.2 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | ---- | ---- | <1 | <1 | <1 |
| Iron | 7439-89-6 | 5 | µg/L | | ---- | ---- | 6 | 7 | <5 |
| Lead | 7439-92-1 | 0.2 | µg/L | | ---- | ---- | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | ---- | ---- | 7870 | 8010 | 7640 |
| Tin | 7440-31-5 | 5 | µg/L | | ---- | ---- | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | ---- | ---- | 2.2 | 1.9 | 1.4 |
| Zinc | 7440-66-6 | 5 | µg/L | | ---- | ---- | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | ---- | 74 | 97 | 8 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | ---- | ---- | 1.8 | 1.8 | 1.9 |
| Barium | 7440-39-3 | 1 | µg/L | | ---- | ---- | 6 | 9 | 5 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | ---- | ---- | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | ---- | ---- | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | ---- | ---- | 0.2 | 0.3 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | ---- | ---- | <1 | 2 | 1 |
| Iron | 7439-89-6 | 5 | µg/L | | ---- | ---- | 112 | 142 | 22 |
| Lead | 7439-92-1 | 0.2 | µg/L | | ---- | ---- | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | 0.9 | 1.3 | 0.7 |
| Strontium | 7440-24-6 | 10 | µg/L | | ---- | ---- | 7460 | 7660 | 7420 |
| Tin | 7440-31-5 | 5 | µg/L | | ---- | ---- | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | ---- | ---- | 1.8 | 2.3 | 1.4 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | 16 | 17 | 28 | 29 | TRIP3 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 03-Jul-2016 10:00 | 03-Jul-2016 14:00 | 07-Jul-2016 10:00 | 07-Jul-2016 10:30 | [07-Jul-2016] |
| Compound | CAS Number | LOR | Unit | | EB1617699-056 | EB1617699-057 | EB1617699-058 | EB1617699-059 | EB1617699-060 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | ---- | ---- | <5 | <5 | <5 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | 19 | 16 | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | 0.4 | 0.4 | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | 6.0 | 6.2 | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | <0.05 | <0.05 | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | <0.2 | <0.2 | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | <0.1 | <0.1 | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | 0.5 | 0.5 | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | 18 | 13 | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | <0.1 | <0.1 | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | 127 | 130 | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | <0.2 | <0.2 | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | 1.9 | 1.8 | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | <1 | <1 | ---- | ---- | ---- |
| **EG094T: Total metals in Fresh water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | 1930 | 3030 | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | 0.7 | 1.0 | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | 14.5 | 20.1 | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | <0.05 | <0.05 | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | 2.5 | 4.0 | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | 1.1 | 2.0 | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | 2.6 | 4.3 | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | 2600 | 4380 | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | 0.7 | 1.2 | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | 2.1 | 3.7 | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | 143 | 153 | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | <0.2 | <0.2 | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | 7.3 | 10.8 | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | 4 | 8 | ---- | ---- | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | 0.02 | 0.02 | 0.16 | 0.14 | 0.14 |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | 16 | 17 | 28 | 29 | TRIP3 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 03-Jul-2016 10:00 | 03-Jul-2016 14:00 | 07-Jul-2016 10:00 | 07-Jul-2016 10:30 | [07-Jul-2016] |
| Compound | CAS Number | LOR | Unit | | EB1617699-056 | EB1617699-057 | EB1617699-058 | EB1617699-059 | EB1617699-060 |
| | | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser - Continued** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | **0.05** | **0.07** | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | **0.05** | **0.07** | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.15** | **0.11** | **0.06** | <0.05 | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | **0.02** | **0.02** | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <2 | <2 | <1 | **4** | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | 16 | 17 | 28 | 29 | TRIP3 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 03-Jul-2016 10:00 | 03-Jul-2016 14:00 | 07-Jul-2016 10:00 | 07-Jul-2016 10:30 | [07-Jul-2016] |
| Compound | CAS Number | LOR | Unit | | EB1617699-056 | EB1617699-057 | EB1617699-058 | EB1617699-059 | EB1617699-060 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **34.1** | **30.5** | **33.8** | **36.3** | **34.6** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **75.1** | **67.1** | **74.0** | **79.9** | **76.3** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | 16 | 17 | 28 | 29 | TRIP3 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 03-Jul-2016 10:00 | 03-Jul-2016 14:00 | 07-Jul-2016 10:00 | 07-Jul-2016 10:30 | [07-Jul-2016] |
| Compound | CAS Number | LOR | Unit | | EB1617699-056 | EB1617699-057 | EB1617699-058 | EB1617699-059 | EB1617699-060 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)S: Phenolic Compound Surrogates - Continued** | | | | | | | | | |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | 84.2 | 72.4 | 78.6 | 86.5 | 78.8 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 1 | % | | 90.3 | 80.7 | 97.5 | 102 | 101 |
| Anthracene-d10 | 1719-06-8 | 1 | % | | 80.4 | 71.4 | 75.8 | 81.9 | 77.6 |
| 4-Terphenyl-d14 | 1718-51-0 | 1 | % | | 106 | 93.4 | 102 | 110 | 105 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 2 | % | | 90.8 | 85.4 | 87.2 | 85.7 | 88.1 |
| Toluene-D8 | 2037-26-5 | 2 | % | | 103 | 104 | 105 | 106 | 101 |
| 4-Bromofluorobenzene | 460-00-4 | 2 | % | | 106 | 110 | 108 | 111 | 112 |

## Analytical Results

Sub-Matrix: **WATER**
(Matrix: **WATER**)

| Compound | CAS Number | LOR | Unit | Client sample ID | M13-S | M13-M | M13-D | M19-S | M19-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 06-Jul-2016 12:30 | 06-Jul-2016 12:40 | 06-Jul-2016 12:50 | 07-Jul-2016 09:10 | 07-Jul-2016 09:20 |
| | | | | | EB1617699-061 | EB1617699-062 | EB1617699-063 | EB1617699-064 | EB1617699-065 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| **Suspended Solids (SS)** | ---- | 1 | mg/L | | **7** | **1** | **5** | **7** | **2** |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **1.5** | **1.5** | **1.4** | **1.4** | **1.5** |
| **Barium** | 7440-39-3 | 1 | µg/L | | **6** | **4** | **4** | **4** | **5** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Iron** | 7439-89-6 | 5 | µg/L | | **10** | **5** | **6** | <5 | **6** |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **7520** | **7740** | **7650** | **7770** | **7850** |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **1.3** | **0.9** | **1.0** | **1.1** | **1.3** |
| **Zinc** | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | **45** | **11** | **19** | **11** | **18** |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **1.8** | **1.9** | **1.9** | **1.9** | **1.8** |
| **Barium** | 7440-39-3 | 1 | µg/L | | **6** | **5** | **5** | **5** | **5** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Iron** | 7439-89-6 | 5 | µg/L | | **67** | **26** | **48** | **25** | **40** |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | **0.6** | **0.6** | <0.5 | <0.5 | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **7030** | **7120** | **7180** | **7150** | **7260** |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **1.4** | **1.0** | **1.2** | **1.2** | **1.2** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M13-S | M13-M | M13-D | M19-S | M19-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 06-Jul-2016 12:30 | 06-Jul-2016 12:40 | 06-Jul-2016 12:50 | 07-Jul-2016 09:10 | 07-Jul-2016 09:20 |
| Compound | CAS Number | LOR | Unit | | EB1617699-061 | EB1617699-062 | EB1617699-063 | EB1617699-064 | EB1617699-065 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EG094T: Total metals in Fresh water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.09** | **0.09** | **0.12** | **0.11** | **0.11** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M13-S | M13-M | M13-D | M19-S | M19-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 06-Jul-2016 12:30 | 06-Jul-2016 12:40 | 06-Jul-2016 12:50 | 07-Jul-2016 09:10 | 07-Jul-2016 09:20 |
| Compound | CAS Number | LOR | Unit | | EB1617699-061 | EB1617699-062 | EB1617699-063 | EB1617699-064 | EB1617699-065 |
| | | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser - Continued** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M13-S | M13-M | M13-D | M19-S | M19-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 06-Jul-2016 12:30 | 06-Jul-2016 12:40 | 06-Jul-2016 12:50 | 07-Jul-2016 09:10 | 07-Jul-2016 09:20 |
| Compound | CAS Number | LOR | Unit | | EB1617699-061 | EB1617699-062 | EB1617699-063 | EB1617699-064 | EB1617699-065 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| **C6 - C9 Fraction** | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| **C10 - C14 Fraction** | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **C10 - C14 Fraction** | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **C15 - C28 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **C15 - C28 Fraction** | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **C29 - C36 Fraction** | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **C29 - C36 Fraction** | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ **C10 - C36 Fraction (sum)** | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ **C10 - C36 Fraction (sum)** | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| **C6 - C10 Fraction** | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ **C6 - C10 Fraction minus BTEX (F1)** | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| **>C10 - C16 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **>C10 - C16 Fraction** | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **>C16 - C34 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **>C16 - C34 Fraction** | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **>C34 - C40 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **>C34 - C40 Fraction** | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ **>C10 - C40 Fraction (sum)** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ **>C10 - C40 Fraction (sum)** | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ **>C10 - C16 Fraction minus Naphthalene (F2)** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| **Benzene** | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Toluene** | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| **Ethylbenzene** | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| **meta- & para-Xylene** | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| **ortho-Xylene** | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ **Total Xylenes** | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ **Sum of BTEX** | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Naphthalene** | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| **Phenol-d6** | 13127-88-3 | 1 | % | | **34.5** | **33.4** | **35.9** | **33.9** | **28.6** |
| **2-Chlorophenol-D4** | 93951-73-6 | 1 | % | | **76.5** | **76.0** | **79.3** | **74.9** | **65.3** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M13-S | M13-M | M13-D | M19-S | M19-D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 06-Jul-2016 12:30 | 06-Jul-2016 12:40 | 06-Jul-2016 12:50 | 07-Jul-2016 09:10 | 07-Jul-2016 09:20 |
| Compound | CAS Number | LOR | Unit | | EB1617699-061 | EB1617699-062 | EB1617699-063 | EB1617699-064 | EB1617699-065 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)S: Phenolic Compound Surrogates - Continued** | | | | | | | | | |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | 83.4 | 76.9 | 83.3 | 78.9 | 65.8 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 1 | % | | 100 | 95.6 | 99.8 | 94.8 | 84.6 |
| Anthracene-d10 | 1719-06-8 | 1 | % | | 79.6 | 76.6 | 80.0 | 74.7 | 66.7 |
| 4-Terphenyl-d14 | 1718-51-0 | 1 | % | | 107 | 100 | 106 | 99.0 | 89.7 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 2 | % | | 87.5 | 88.9 | 88.5 | 91.2 | 91.8 |
| Toluene-D8 | 2037-26-5 | 2 | % | | 102 | 98.9 | 97.3 | 101 | 98.6 |
| 4-Bromofluorobenzene | 460-00-4 | 2 | % | | 106 | 111 | 110 | 107 | 110 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M17-S | M17-D | M21-S | M21-D | M22-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 07-Jul-2016 08:30 | 07-Jul-2016 08:40 | 07-Jul-2016 10:20 | 07-Jul-2016 10:30 | 07-Jul-2016 12:30 |
| Compound | CAS Number | LOR | Unit | | EB1617699-066 | EB1617699-067 | EB1617699-068 | EB1617699-069 | EB1617699-070 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | 3 | 2 | 6 | 4 | 7 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.4 | 1.6 | 1.5 | 1.6 | 1.5 |
| Barium | 7440-39-3 | 1 | µg/L | | 4 | 4 | 5 | 5 | 5 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Iron | 7439-89-6 | 5 | µg/L | | 13 | 12 | 5 | 5 | 6 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 7740 | 7850 | 7810 | 7780 | 7800 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 1.8 | 1.3 | 1.4 | 1.4 | 1.8 |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | 30 | 34 | 13 | 14 | 10 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.9 | 1.9 | 1.7 | 1.8 | 1.8 |
| Barium | 7440-39-3 | 1 | µg/L | | 5 | 5 | 5 | 5 | 5 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | 5 | <1 | <1 | <1 | <1 |
| Iron | 7439-89-6 | 5 | µg/L | | 30 | 67 | 30 | 60 | 24 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 7150 | 7150 | 7240 | 7180 | 7240 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 1.0 | 1.1 | 1.0 | 1.1 | 1.1 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M17-S | M17-D | M21-S | M21-D | M22-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 07-Jul-2016 08:30 | 07-Jul-2016 08:40 | 07-Jul-2016 10:20 | 07-Jul-2016 10:30 | 07-Jul-2016 12:30 |
| Compound | CAS Number | LOR | Unit | | EB1617699-066 | EB1617699-067 | EB1617699-068 | EB1617699-069 | EB1617699-070 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| **Zinc** | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Arsenic** | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Barium** | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Cadmium** | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Chromium** | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Cobalt** | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Copper** | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Iron** | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Lead** | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Strontium** | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Tin** | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Vanadium** | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Zinc** | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EG094T: Total metals in Fresh water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Arsenic** | 7440-38-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Barium** | 7440-39-3 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Cadmium** | 7440-43-9 | 0.05 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Chromium** | 7440-47-3 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Cobalt** | 7440-48-4 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Copper** | 7440-50-8 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Iron** | 7439-89-6 | 2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Lead** | 7439-92-1 | 0.1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Strontium** | 7440-24-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Tin** | 7440-31-5 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Vanadium** | 7440-62-2 | 0.2 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **Zinc** | 7440-66-6 | 1 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| **Ammonia as N** | 7664-41-7 | 0.01 | mg/L | | **0.13** | **0.14** | **0.15** | **0.12** | **0.11** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M17-S | M17-D | M21-S | M21-D | M22-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 07-Jul-2016 08:30 | 07-Jul-2016 08:40 | 07-Jul-2016 10:20 | 07-Jul-2016 10:30 | 07-Jul-2016 12:30 |
| Compound | CAS Number | LOR | Unit | | EB1617699-066 | EB1617699-067 | EB1617699-068 | EB1617699-069 | EB1617699-070 |
| | | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser - Continued** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M17-S | M17-D | M21-S | M21-D | M22-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 07-Jul-2016 08:30 | 07-Jul-2016 08:40 | 07-Jul-2016 10:20 | 07-Jul-2016 10:30 | 07-Jul-2016 12:30 |
| Compound | CAS Number | LOR | Unit | | EB1617699-066 | EB1617699-067 | EB1617699-068 | EB1617699-069 | EB1617699-070 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **29.0** | **33.4** | **30.8** | **27.4** | **34.2** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **68.0** | **74.2** | **71.1** | **64.4** | **77.4** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M17-S | M17-D | M21-S | M21-D | M22-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 07-Jul-2016 08:30 | 07-Jul-2016 08:40 | 07-Jul-2016 10:20 | 07-Jul-2016 10:30 | 07-Jul-2016 12:30 |
| Compound | CAS Number | LOR | Unit | | EB1617699-066 | EB1617699-067 | EB1617699-068 | EB1617699-069 | EB1617699-070 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)S: Phenolic Compound Surrogates - Continued** | | | | | | | | | |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | 65.6 | 74.5 | 71.5 | 61.9 | 78.0 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 1 | % | | 93.6 | 94.1 | 89.5 | 84.6 | 99.3 |
| Anthracene-d10 | 1719-06-8 | 1 | % | | 46.0 | 73.6 | 70.6 | 64.5 | 77.9 |
| 4-Terphenyl-d14 | 1718-51-0 | 1 | % | | 62.6 | 97.9 | 93.8 | 88.3 | 104 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 2 | % | | 95.2 | 93.1 | 87.8 | 94.4 | 86.7 |
| Toluene-D8 | 2037-26-5 | 2 | % | | 103 | 101 | 98.8 | 104 | 102 |
| 4-Bromofluorobenzene | 460-00-4 | 2 | % | | 113 | 110 | 115 | 107 | 106 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M22-D | Rinsate | TRIP BLANK 1 | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 07-Jul-2016 12:40 | 07-Jul-2016 14:50 | [19-Jan-2016] | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1617699-071 | EB1617699-072 | EB1617699-073 | -------- | -------- |
| | | | | | Result | Result | Result | ---- | ---- |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| **Suspended Solids (SS)** | ---- | 1 | mg/L | | **2** | ---- | ---- | ---- | ---- |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | ---- | ---- | ---- |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | ---- | ---- | ---- |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | <5 | ---- | ---- | ---- | ---- |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **1.6** | ---- | ---- | ---- | ---- |
| **Barium** | 7440-39-3 | 1 | µg/L | | **5** | ---- | ---- | ---- | ---- |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | ---- | ---- | ---- | ---- |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | ---- | ---- | ---- | ---- |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | <0.2 | ---- | ---- | ---- | ---- |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | ---- | ---- | ---- | ---- |
| **Iron** | 7439-89-6 | 5 | µg/L | | **7** | ---- | ---- | ---- | ---- |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | ---- | ---- | ---- | ---- |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | ---- | ---- | ---- | ---- |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **7820** | ---- | ---- | ---- | ---- |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | ---- | ---- | ---- | ---- |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **2.2** | ---- | ---- | ---- | ---- |
| **Zinc** | 7440-66-6 | 5 | µg/L | | <5 | ---- | ---- | ---- | ---- |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | **14** | ---- | ---- | ---- | ---- |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **1.8** | ---- | ---- | ---- | ---- |
| **Barium** | 7440-39-3 | 1 | µg/L | | **5** | ---- | ---- | ---- | ---- |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | ---- | ---- | ---- | ---- |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | ---- | ---- | ---- | ---- |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | <0.2 | ---- | ---- | ---- | ---- |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | ---- | ---- | ---- | ---- |
| **Iron** | 7439-89-6 | 5 | µg/L | | **30** | ---- | ---- | ---- | ---- |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | ---- | ---- | ---- | ---- |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | ---- | ---- | ---- | ---- |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **7180** | ---- | ---- | ---- | ---- |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | ---- | ---- | ---- | ---- |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **1.1** | ---- | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M22-D | Rinsate | TRIP BLANK 1 | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 07-Jul-2016 12:40 | 07-Jul-2016 14:50 | [19-Jan-2016] | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1617699-071 | EB1617699-072 | EB1617699-073 | -------- | -------- |
| | | | | | Result | Result | Result | ---- | ---- |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | ---- | ---- | ---- | ---- |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | <5 | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | ---- | <0.2 | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | ---- | <0.5 | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | ---- | <0.05 | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | ---- | <0.2 | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | ---- | <0.1 | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | ---- | <0.5 | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | ---- | <2 | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | ---- | <0.1 | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | <0.5 | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | ---- | <1 | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | ---- | <0.2 | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | ---- | <0.2 | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | ---- | <1 | ---- | ---- | ---- |
| **EG094T: Total metals in Fresh water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | ---- | <5 | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 0.2 | µg/L | | ---- | <0.2 | ---- | ---- | ---- |
| Barium | 7440-39-3 | 0.5 | µg/L | | ---- | <0.5 | ---- | ---- | ---- |
| Cadmium | 7440-43-9 | 0.05 | µg/L | | ---- | <0.05 | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.2 | µg/L | | ---- | <0.2 | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | ---- | <0.1 | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.5 | µg/L | | ---- | <0.5 | ---- | ---- | ---- |
| Iron | 7439-89-6 | 2 | µg/L | | ---- | <2 | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | µg/L | | ---- | <0.1 | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | ---- | <0.5 | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 1 | µg/L | | ---- | <1 | ---- | ---- | ---- |
| Tin | 7440-31-5 | 0.2 | µg/L | | ---- | <0.2 | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 0.2 | µg/L | | ---- | <0.2 | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 1 | µg/L | | ---- | <1 | ---- | ---- | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.10** | **0.04** | ---- | ---- | ---- |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M22-D | Rinsate | TRIP BLANK 1 | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 07-Jul-2016 12:40 | 07-Jul-2016 14:50 | [19-Jan-2016] | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1617699-071 | EB1617699-072 | EB1617699-073 | -------- | -------- |
| | | | | | Result | Result | Result | ---- | ---- |
| **EK057G: Nitrite as N by Discrete Analyser - Continued** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | ---- | ---- | ---- | ---- |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | ---- | ---- | ---- | ---- |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | ---- | ---- | ---- |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | ---- | ---- | ---- |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | ---- | ---- | ---- |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | <0.05 | ---- | ---- | ---- |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | ---- | ---- | ---- | ---- |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | ---- | ---- | ---- | ---- |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | ---- | ---- | ---- |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | ---- | ---- | ---- |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M22-D | Rinsate | TRIP BLANK 1 | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 07-Jul-2016 12:40 | 07-Jul-2016 14:50 | [19-Jan-2016] | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1617699-071 | EB1617699-072 | EB1617699-073 | -------- | -------- |
| | | | | | Result | Result | Result | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | ---- | ---- |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | ---- | ---- | ---- |
| C10 - C14 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | ---- | ---- |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | ---- | ---- |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | ---- | ---- | ---- |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | ---- | ---- | ---- |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | ---- | ---- |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | ---- | ---- |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | ---- | ---- |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | ---- | ---- |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | ---- | ---- |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | ---- | ---- |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | ---- | ---- |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | ---- | ---- |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **32.9** | **25.7** | ---- | ---- | ---- |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **75.2** | **67.5** | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M22-D | Rinsate | TRIP BLANK 1 | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 07-Jul-2016 12:40 | 07-Jul-2016 14:50 | [19-Jan-2016] | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1617699-071 | EB1617699-072 | EB1617699-073 | -------- | -------- |
| | | | | | Result | Result | Result | ---- | ---- |
| **EP075(SIM)S: Phenolic Compound Surrogates - Continued** | | | | | | | | | |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | 74.2 | 70.0 | ---- | ---- | ---- |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 1 | % | | 96.8 | 92.7 | ---- | ---- | ---- |
| Anthracene-d10 | 1719-06-8 | 1 | % | | 72.7 | 70.0 | ---- | ---- | ---- |
| 4-Terphenyl-d14 | 1718-51-0 | 1 | % | | 100 | 96.6 | ---- | ---- | ---- |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 2 | % | | 88.8 | 93.2 | 95.8 | ---- | ---- |
| Toluene-D8 | 2037-26-5 | 2 | % | | 101 | 110 | 100 | ---- | ---- |
| 4-Bromofluorobenzene | 460-00-4 | 2 | % | | 109 | 113 | 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 | 72 |
| **2-Chlorophenol-D4** | 93951-73-6 | 27 | 130 |
| **2.4.6-Tribromophenol** | 118-79-6 | 19 | 181 |
| **EP075(SIM)T: PAH Surrogates** | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 14 | 146 |
| **Anthracene-d10** | 1719-06-8 | 35 | 137 |
| **4-Terphenyl-d14** | 1718-51-0 | 36 | 154 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 66 | 138 |
| **Toluene-D8** | 2037-26-5 | 79 | 120 |
| **4-Bromofluorobenzene** | 460-00-4 | 74 | 118 |

ALS Environmental

# QUALITY CONTROL REPORT

| | | | |
|---|---|---|---|
| **Work Order** | : **EB1617699** | Page | : 1 of 32 |
| **Amendment** | : **2** | | |
| Client | : **BMT WBM GROUP LTD** | Laboratory | : Environmental Division Brisbane |
| Contact | : MR JEREMY VISSER | Contact | : John Pickering |
| Address | : PO BOX 203 SPRING HILL BRISBANE QLD 4004 | Address | : 2 Byth Street Stafford QLD Australia 4053 |
| Telephone | : +61 07 3831 6744 | Telephone | : +61 7 3552 8634 |
| Project | : B21414 Elk | Date Samples Received | : 11-Jul-2016 |
| Order number | : ---- | Date Analysis Commenced | : 12-Jul-2016 |
| C-O-C number | : ---- | Issue Date | : 26-Jul-2016 |
| Sampler | : CONOR JONES, DANIEL MORAN | | |
| Site | : ---- | | |
| Quote number | : ---- | | |
| No. of samples received | : 74 | | |
| No. of samples analysed | : 73 | | |

NATA Accredited Laboratory 825
Accredited for compliance with ISO/IEC 17025.

NATA
WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

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* |
|---|---|---|
| Andrew Epps | Senior Inorganic Chemist | Brisbane Inorganics, Stafford, QLD |
| Andrew Epps | Senior Inorganic Chemist | WB Water Lab Brisbane, Stafford, QLD |
| Greg Vogel | Laboratory Manager | Brisbane Inorganics, Stafford, QLD |
| Greg Vogel | Laboratory Manager | WB Water Lab Brisbane, Stafford, QLD |
| Kim McCabe | Senior Inorganic Chemist | Brisbane Inorganics, Stafford, QLD |
| Matt Frost | Senior Organic Chemist | Brisbane Organics, Stafford, QLD |

## 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 (%)* |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 515250)** | | | | | | | | | |
| EB1617699-001 | M1-S | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | 17 | 17 | 0.00 | 0% - 50% |
| EB1617699-011 | M5-S | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | 1 | 2 | 0.00 | No Limit |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 515251)** | | | | | | | | | |
| EB1617699-021 | DUP3 | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | 47 | 51 | 8.71 | 0% - 20% |
| EB1617699-031 | M9-S | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | 5 | 4 | 0.00 | No Limit |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 515254)** | | | | | | | | | |
| EB1617699-037 | M25-S | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | 2 | <1 | 0.00 | No Limit |
| EB1617699-047 | M43-M | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | 1 | 2 | 76.5 | No Limit |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 515255)** | | | | | | | | | |
| EB1617699-057 | 17 | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | 74 | 78 | 4.27 | 0% - 20% |
| EB1617699-067 | M17-D | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | 2 | 5 | 66.7 | No Limit |
| **EG035F: Dissolved Mercury by FIMS (QC Lot: 515772)** | | | | | | | | | |
| EB1617699-001 | M1-S | EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| EB1617699-011 | M5-S | EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| **EG035F: Dissolved Mercury by FIMS (QC Lot: 515773)** | | | | | | | | | |
| EB1617699-021 | DUP3 | EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| EB1617699-031 | M9-S | EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| **EG035F: Dissolved Mercury by FIMS (QC Lot: 515776)** | | | | | | | | | |
| EB1617699-041 | M31-M | EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| EB1617699-051 | 21 | EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| **EG035F: Dissolved Mercury by FIMS (QC Lot: 515777)** | | | | | | | | | |
| EB1617699-061 | M13-S | EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| EB1617699-071 | M22-D | EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 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 (%)* |
| **EG035T: Total Recoverable Mercury by FIMS (QC Lot: 515823)** | | | | | | | | | |
| EB1617699-001 | M1-S | EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| EB1617699-011 | M5-S | EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| **EG035T: Total Recoverable Mercury by FIMS (QC Lot: 515824)** | | | | | | | | | |
| EB1617699-021 | DUP3 | EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| EB1617699-031 | M9-S | EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| **EG035T: Total Recoverable Mercury by FIMS (QC Lot: 515825)** | | | | | | | | | |
| EB1617699-041 | M31-M | EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| EB1617699-051 | 21 | EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| **EG035T: Total Recoverable Mercury by FIMS (QC Lot: 515826)** | | | | | | | | | |
| EB1617699-061 | M13-S | EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| EB1617699-071 | M22-D | EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 515559)** | | | | | | | | | |
| EB1617699-001 | M1-S | EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | 0.8 | 0.6 | 14.1 | No Limit |
| | | EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | 2.5 | 2.2 | 13.8 | No Limit |
| | | EG093A-F: Barium | 7440-39-3 | 1 | µg/L | 11 | 11 | 0.00 | 0% - 50% |
| | | EG093A-F: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | 4400 | 4360 | 0.926 | 0% - 20% |
| | | EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | 6 | 6 | 0.00 | No Limit |
| | | EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| EB1617699-010 | M4-D | EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.6 | 1.7 | 0.00 | No Limit |
| | | EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | 1.7 | 1.8 | 0.00 | No Limit |
| | | EG093A-F: Barium | 7440-39-3 | 1 | µg/L | 5 | 4 | 0.00 | No Limit |
| | | EG093A-F: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | 7760 | 7710 | 0.721 | 0% - 20% |
| | | EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 515560)** | | | | | | | | | |

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 (%)* |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 515560) - continued** | | | | | | | | | |
| EB1617699-001 | M1-S | EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| EB1617699-010 | M4-D | EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 515561)** | | | | | | | | | |
| EB1617699-030 | M8-D | EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 515562)** | | | | | | | | | |
| EB1617699-030 | M8-D | EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.4 | 1.2 | 12.6 | No Limit |
| | | EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | 1.9 | 1.8 | 0.00 | No Limit |
| | | EG093A-F: Barium | 7440-39-3 | 1 | µg/L | 6 | 7 | 0.00 | No Limit |
| | | EG093A-F: Copper | 7440-50-8 | 1 | µg/L | 1 | 1 | 0.00 | No Limit |
| | | EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | 6960 | 7040 | 1.15 | 0% - 20% |
| | | EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | 5 | 6 | 0.00 | No Limit |
| | | EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 515568)** | | | | | | | | | |
| EB1617699-037 | M25-S | EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 515569)** | | | | | | | | | |
| EB1617699-057 | 17 | EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <25 | <25 | 0.00 | No Limit |
| EB1617699-066 | M17-S | EG093B-F: Iron | 7439-89-6 | 5 | µg/L | 13 | <5 | 88.6 | No Limit |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 515570)** | | | | | | | | | |
| EB1617699-057 | 17 | EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <1.0 | <1.0 | 0.00 | No Limit |
| | | EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | <2.5 | <2.5 | 0.00 | No Limit |
| | | EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <2.5 | <2.5 | 0.00 | No Limit |
| | | EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <2.5 | <2.5 | 0.00 | No Limit |
| | | EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | <2.5 | <2.5 | 0.00 | No Limit |
| | | EG093A-F: Barium | 7440-39-3 | 1 | µg/L | 8 | 6 | 27.0 | No Limit |
| | | EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | 144 | 141 | 2.02 | No Limit |
| | | EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <25 | <25 | 0.00 | No Limit |
| | | EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <25 | <25 | 0.00 | No Limit |
| EB1617699-066 | M17-S | EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.4 | <0.5 | 94.1 | 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 (%)* |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 515570) - continued** | | | | | | | | | |
| EB1617699-066 | M17-S | EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | 1.8 | <0.5 | 112 | No Limit |
| | | EG093A-F: Barium | 7440-39-3 | 1 | µg/L | 4 | <1 | 128 | No Limit |
| | | EG093A-F: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | 7740 | 7760 | 0.232 | 0% - 20% |
| | | EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 515572)** | | | | | | | | | |
| EB1617699-001 | M1-S | EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | 0.5 | 0.5 | 0.00 | No Limit |
| | | EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | 0.9 | 0.8 | 0.00 | No Limit |
| | | EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | 1.2 | 1.0 | 10.0 | No Limit |
| | | EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | 1.4 | 1.2 | 11.2 | No Limit |
| | | EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | 3.7 | 3.8 | 0.00 | No Limit |
| | | EG093A-T: Barium | 7440-39-3 | 1 | µg/L | 11 | 11 | 0.00 | 0% - 50% |
| | | EG093A-T: Copper | 7440-50-8 | 1 | µg/L | 2 | 2 | 0.00 | No Limit |
| | | EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | 4300 | 4200 | 2.32 | 0% - 20% |
| | | EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | 801 | 760 | 5.20 | 0% - 20% |
| | | EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| EB1617699-010 | M4-D | EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.7 | 1.7 | 0.00 | No Limit |
| | | EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | 0.9 | 0.8 | 18.1 | No Limit |
| | | EG093A-T: Barium | 7440-39-3 | 1 | µg/L | 4 | 5 | 0.00 | No Limit |
| | | EG093A-T: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | 7160 | 7220 | 0.789 | 0% - 20% |
| | | EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | 137 | 128 | 7.08 | 0% - 20% |
| | | EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 515573)** | | | | | | | | | |
| EB1617699-001 | M1-S | EG093B-T: Iron | 7439-89-6 | 5 | µg/L | 920 | 922 | 0.122 | 0% - 20% |
| EB1617699-010 | M4-D | EG093B-T: Iron | 7439-89-6 | 5 | µg/L | 174 | 174 | 0.00 | 0% - 20% |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 515574)** | | | | | | | | | |

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 (%)* |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 515574) - continued** | | | | | | | | | |
| EB1617699-030 | M8-D | EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.6 | 1.2 | 27.2 | No Limit |
| | | EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | 0.7 | 0.7 | 0.00 | No Limit |
| | | EG093A-T: Barium | 7440-39-3 | 1 | µg/L | 8 | 6 | 25.2 | No Limit |
| | | EG093A-T: Copper | 7440-50-8 | 1 | µg/L | 1 | <1 | 0.00 | No Limit |
| | | EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | 7770 | 6470 | 18.2 | 0% - 20% |
| | | EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | 98 | 87 | 12.3 | 0% - 50% |
| | | EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 515575)** | | | | | | | | | |
| EB1617699-030 | M8-D | EG093B-T: Iron | 7439-89-6 | 5 | µg/L | 135 | 116 | 15.3 | 0% - 20% |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 515576)** | | | | | | | | | |
| EB1617699-037 | M25-S | EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.8 | 1.7 | 8.92 | No Limit |
| | | EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | 0.8 | 1.1 | 26.9 | No Limit |
| | | EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | 1.3 | 1.2 | 9.28 | No Limit |
| | | EG093A-T: Barium | 7440-39-3 | 1 | µg/L | 5 | 5 | 0.00 | No Limit |
| | | EG093A-T: Copper | 7440-50-8 | 1 | µg/L | 3 | 4 | 0.00 | No Limit |
| | | EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | 7120 | 7120 | 0.00 | 0% - 20% |
| | | EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | 9 | 10 | 11.0 | No Limit |
| | | EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| EB1617699-046 | M43-S | EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.8 | 1.8 | 0.00 | No Limit |
| | | EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | 0.7 | <0.5 | 31.8 | No Limit |
| | | EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | 1.3 | 1.2 | 9.58 | No Limit |
| | | EG093A-T: Barium | 7440-39-3 | 1 | µg/L | 6 | 5 | 0.00 | No Limit |
| | | EG093A-T: Copper | 7440-50-8 | 1 | µg/L | 1 | 1 | 0.00 | No Limit |
| | | EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | 7040 | 6920 | 1.70 | 0% - 20% |
| | | EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | 29 | 29 | 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 (%)* |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 515576) - continued** | | | | | | | | | |
| EB1617699-046 | M43-S | EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | 10 | 63.1 | No Limit |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 515577)** | | | | | | | | | |
| EB1617699-037 | M25-S | EG093B-T: Iron | 7439-89-6 | 5 | µg/L | 15 | 16 | 7.85 | No Limit |
| EB1617699-046 | M43-S | EG093B-T: Iron | 7439-89-6 | 5 | µg/L | 49 | 50 | 0.00 | No Limit |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 515578)** | | | | | | | | | |
| EB1617699-057 | 17 | EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | 2.1 | 2.1 | 0.00 | 0% - 50% |
| | | EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | 1.2 | 1.2 | 0.00 | No Limit |
| | | EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | 3.8 | 3.6 | 5.23 | No Limit |
| | | EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | 3.6 | 3.8 | 5.92 | No Limit |
| | | EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | 4.7 | 4.7 | 0.00 | No Limit |
| | | EG093A-T: Barium | 7440-39-3 | 1 | µg/L | 18 | 18 | 0.00 | 0% - 50% |
| | | EG093A-T: Copper | 7440-50-8 | 1 | µg/L | 2 | 2 | 0.00 | No Limit |
| | | EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | 156 | 157 | 0.00 | 0% - 50% |
| | | EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | 2660 | 2700 | 1.65 | 0% - 20% |
| | | EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | 6 | 7 | 0.00 | No Limit |
| EB1617699-066 | M17-S | EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.9 | 1.8 | 0.00 | No Limit |
| | | EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | 1.0 | 1.0 | 0.00 | No Limit |
| | | EG093A-T: Barium | 7440-39-3 | 1 | µg/L | 5 | 5 | 0.00 | No Limit |
| | | EG093A-T: Copper | 7440-50-8 | 1 | µg/L | 5 | 6 | 0.00 | No Limit |
| | | EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | 7150 | 7140 | 0.131 | 0% - 20% |
| | | EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | 30 | 12 | 89.8 | No Limit |
| | | EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 515579)** | | | | | | | | | |
| EB1617699-057 | 17 | EG093B-T: Iron | 7439-89-6 | 5 | µg/L | 4490 | 4520 | 0.664 | 0% - 20% |
| EB1617699-066 | M17-S | EG093B-T: Iron | 7439-89-6 | 5 | µg/L | 30 | 35 | 16.2 | No Limit |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 520729)** | | | | | | | | | |
| EB1617699-049 | 18 | EG094B-F: Iron | 7439-89-6 | 2 | µg/L | 20 | 20 | 0.00 | 0% - 50% |
| EB1617699-066 | M17-S | EG094B-F: Iron | 7439-89-6 | 2 | µg/L | 2 | 2 | 0.00 | No Limit |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 520730)** | | | | | | | | | |

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 (%)* |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QC Lot: 520730) - continued** | | | | | | | | | |
| EB1617699-049 | 18 | EG094A-F: Cadmium | 7440-43-9 | 0.05 | µg/L | <0.05 | <0.05 | 0.00 | No Limit |
| | | EG094A-F: Cobalt | 7440-48-4 | 0.1 | µg/L | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG094A-F: Lead | 7439-92-1 | 0.1 | µg/L | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG094A-F: Arsenic | 7440-38-2 | 0.2 | µg/L | 0.5 | 0.4 | 0.00 | No Limit |
| | | EG094A-F: Chromium | 7440-47-3 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG094A-F: Tin | 7440-31-5 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG094A-F: Vanadium | 7440-62-2 | 0.2 | µg/L | 2.4 | 2.3 | 4.99 | 0% - 50% |
| | | EG094A-F: Barium | 7440-39-3 | 0.5 | µg/L | 5.3 | 5.2 | 2.15 | 0% - 50% |
| | | EG094A-F: Copper | 7440-50-8 | 0.5 | µg/L | 0.7 | 0.7 | 0.00 | No Limit |
| | | EG094A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG094A-F: Strontium | 7440-24-6 | 1 | µg/L | 105 | 106 | 1.16 | 0% - 20% |
| | | EG094A-F: Zinc | 7440-66-6 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG094A-F: Aluminium | 7429-90-5 | 5 | µg/L | 16 | 16 | 0.00 | No Limit |
| EB1617699-066 | M17-S | EG094A-F: Cadmium | 7440-43-9 | 0.05 | µg/L | <0.05 | <0.05 | 0.00 | No Limit |
| | | EG094A-F: Cobalt | 7440-48-4 | 0.1 | µg/L | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG094A-F: Lead | 7439-92-1 | 0.1 | µg/L | 0.1 | <0.1 | 0.00 | No Limit |
| | | EG094A-F: Arsenic | 7440-38-2 | 0.2 | µg/L | 2.2 | 2.1 | 0.00 | 0% - 50% |
| | | EG094A-F: Chromium | 7440-47-3 | 0.2 | µg/L | <0.2 | 0.2 | 0.00 | No Limit |
| | | EG094A-F: Tin | 7440-31-5 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG094A-F: Vanadium | 7440-62-2 | 0.2 | µg/L | 2.5 | 2.6 | 4.31 | 0% - 50% |
| | | EG094A-F: Barium | 7440-39-3 | 0.5 | µg/L | 5.5 | 5.5 | 0.00 | 0% - 50% |
| | | EG094A-F: Copper | 7440-50-8 | 0.5 | µg/L | 1.2 | 1.6 | 33.8 | No Limit |
| | | EG094A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG094A-F: Strontium | 7440-24-6 | 1 | µg/L | 8040 | 8040 | 0.00 | 0% - 20% |
| | | EG094A-F: Zinc | 7440-66-6 | 1 | µg/L | 2 | 2 | 0.00 | No Limit |
| | | EG094A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 45 | 160 | No Limit |
| **EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 520736)** | | | | | | | | | |
| EB1617699-049 | 18 | EG094B-T: Iron | 7439-89-6 | 2 | µg/L | 4270 | 4380 | 2.63 | 0% - 20% |
| EB1617699-066 | M17-S | EG094B-T: Iron | 7439-89-6 | 2 | µg/L | 37 | 35 | 6.31 | 0% - 50% |
| **EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 520737)** | | | | | | | | | |
| EB1617699-049 | 18 | EG094A-T: Cadmium | 7440-43-9 | 0.05 | µg/L | <0.05 | <0.05 | 0.00 | No Limit |
| | | EG094A-T: Cobalt | 7440-48-4 | 0.1 | µg/L | 1.8 | 1.9 | 0.00 | 0% - 50% |
| | | EG094A-T: Lead | 7439-92-1 | 0.1 | µg/L | 1.0 | 1.0 | 0.00 | No Limit |
| | | EG094A-T: Arsenic | 7440-38-2 | 0.2 | µg/L | 1.1 | 1.1 | 0.00 | No Limit |
| | | EG094A-T: Chromium | 7440-47-3 | 0.2 | µg/L | 4.5 | 4.8 | 7.35 | 0% - 20% |
| | | EG094A-T: Tin | 7440-31-5 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG094A-T: Vanadium | 7440-62-2 | 0.2 | µg/L | 11.0 | 11.8 | 6.40 | 0% - 20% |
| | | EG094A-T: Barium | 7440-39-3 | 0.5 | µg/L | 16.5 | 17.3 | 5.10 | 0% - 20% |
| | | EG094A-T: Copper | 7440-50-8 | 0.5 | µg/L | 5.1 | 5.2 | 2.41 | 0% - 50% |
| | | EG094A-T: Nickel | 7440-02-0 | 0.5 | µg/L | 4.0 | 4.2 | 4.64 | 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 (%)* |
| **EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 520737) - continued** | | | | | | | | | |
| EB1617699-049 | 18 | EG094A-T: Strontium | 7440-24-6 | 1 | µg/L | 123 | 122 | 0.00 | 0% - 20% |
| | | EG094A-T: Zinc | 7440-66-6 | 1 | µg/L | 9 | 9 | 0.00 | No Limit |
| | | EG094A-T: Aluminium | 7429-90-5 | 5 | µg/L | 2990 | 3150 | 5.09 | 0% - 20% |
| EB1617699-066 | M17-S | EG094A-T: Cadmium | 7440-43-9 | 0.05 | µg/L | <0.05 | <0.05 | 0.00 | No Limit |
| | | EG094A-T: Cobalt | 7440-48-4 | 0.1 | µg/L | 0.1 | 0.1 | 0.00 | No Limit |
| | | EG094A-T: Lead | 7439-92-1 | 0.1 | µg/L | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG094A-T: Arsenic | 7440-38-2 | 0.2 | µg/L | 2.2 | 2.2 | 0.00 | 0% - 50% |
| | | EG094A-T: Chromium | 7440-47-3 | 0.2 | µg/L | 0.5 | 0.5 | 0.00 | No Limit |
| | | EG094A-T: Tin | 7440-31-5 | 0.2 | µg/L | 0.3 | 0.2 | 0.00 | No Limit |
| | | EG094A-T: Vanadium | 7440-62-2 | 0.2 | µg/L | 2.8 | 2.8 | 0.00 | 0% - 50% |
| | | EG094A-T: Barium | 7440-39-3 | 0.5 | µg/L | 5.5 | 5.8 | 4.61 | 0% - 50% |
| | | EG094A-T: Copper | 7440-50-8 | 0.5 | µg/L | 5.7 | 6.1 | 6.42 | 0% - 50% |
| | | EG094A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG094A-T: Strontium | 7440-24-6 | 1 | µg/L | 8300 | 8490 | 2.24 | 0% - 20% |
| | | EG094A-T: Zinc | 7440-66-6 | 1 | µg/L | 5 | 5 | 0.00 | No Limit |
| | | EG094A-T: Aluminium | 7429-90-5 | 5 | µg/L | 22 | 21 | 0.00 | No Limit |
| **EK055G: Ammonia as N by Discrete Analyser (QC Lot: 515623)** | | | | | | | | | |
| EB1617699-061 | M13-S | EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | 0.09 | 0.06 | 30.9 | No Limit |
| EB1617699-071 | M22-D | EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | 0.10 | 0.09 | 0.00 | No Limit |
| **EK055G: Ammonia as N by Discrete Analyser (QC Lot: 515625)** | | | | | | | | | |
| EB1617699-001 | M1-S | EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | 0.03 | <0.01 | 110 | No Limit |
| EB1617699-011 | M5-S | EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | 0.09 | 0.08 | 16.4 | No Limit |
| **EK055G: Ammonia as N by Discrete Analyser (QC Lot: 515627)** | | | | | | | | | |
| EB1617699-021 | DUP3 | EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | 0.04 | 0.03 | 0.00 | No Limit |
| EB1617699-031 | M9-S | EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | 0.03 | 0.02 | 76.1 | No Limit |
| **EK055G: Ammonia as N by Discrete Analyser (QC Lot: 515629)** | | | | | | | | | |
| EB1617699-041 | M31-M | EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | 0.15 | 0.14 | 6.90 | 0% - 50% |
| EB1617699-051 | 21 | EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | 0.04 | 0.03 | 34.2 | No Limit |
| **EK057G: Nitrite as N by Discrete Analyser (QC Lot: 515172)** | | | | | | | | | |
| EB1617699-001 | M1-S | EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| EB1617699-011 | M5-S | EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK057G: Nitrite as N by Discrete Analyser (QC Lot: 515173)** | | | | | | | | | |
| EB1617699-021 | DUP3 | EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| EB1617699-031 | M9-S | EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK057G: Nitrite as N by Discrete Analyser (QC Lot: 515179)** | | | | | | | | | |
| EB1617699-034 | M10-S | EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| EB1617699-044 | M37-M | EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK057G: Nitrite as N by Discrete Analyser (QC Lot: 515181)** | | | | | | | | | |
| EB1617699-054 | 23-b | EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | 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 (%)* |
| **EK057G: Nitrite as N by Discrete Analyser (QC Lot: 515181) - continued** | | | | | | | | | |
| EB1617699-064 | M19-S | EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 515624)** | | | | | | | | | |
| EB1617699-061 | M13-S | EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| EB1617699-071 | M22-D | EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 515626)** | | | | | | | | | |
| EB1617699-001 | M1-S | EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| EB1617699-011 | M5-S | EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 515628)** | | | | | | | | | |
| EB1617699-021 | DUP3 | EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | 0.04 | 0.04 | 0.00 | No Limit |
| EB1617699-031 | M9-S | EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 515630)** | | | | | | | | | |
| EB1617699-041 | M31-M | EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| EB1617699-051 | 21 | EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | 0.03 | 0.03 | 0.00 | No Limit |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 516874)** | | | | | | | | | |
| EB1617699-001 | M1-S | EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.5 | <0.5 | 0.00 | No Limit |
| EB1617699-011 | M5-S | EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.5 | <0.5 | 0.00 | No Limit |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 516876)** | | | | | | | | | |
| EB1617699-021 | DUP3 | EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.5 | <0.5 | 0.00 | No Limit |
| EB1617699-031 | M9-S | EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.5 | <0.5 | 0.00 | No Limit |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 516878)** | | | | | | | | | |
| EB1617699-039 | M25-D | EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.5 | <0.5 | 0.00 | No Limit |
| EB1617699-049 | 18 | EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.5 | <0.5 | 0.00 | No Limit |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 516880)** | | | | | | | | | |
| EB1617699-059 | 29 | EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.5 | <0.5 | 0.00 | No Limit |
| EB1617699-069 | M21-D | EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.5 | <0.5 | 0.00 | No Limit |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 516873)** | | | | | | | | | |
| EB1617699-001 | M1-S | EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | 0.06 | <0.05 | 24.6 | No Limit |
| EB1617699-011 | M5-S | EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | 0.06 | 0.05 | 0.00 | No Limit |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 516875)** | | | | | | | | | |
| EB1617699-021 | DUP3 | EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.05 | <0.05 | 0.00 | No Limit |
| EB1617699-031 | M9-S | EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.05 | <0.05 | 0.00 | No Limit |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 516877)** | | | | | | | | | |
| EB1617699-039 | M25-D | EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.05 | <0.05 | 0.00 | No Limit |
| EB1617699-049 | 18 | EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | 0.05 | 0.06 | 19.2 | No Limit |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 516879)** | | | | | | | | | |
| EB1617699-059 | 29 | EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.05 | <0.05 | 0.00 | No Limit |
| EB1617699-069 | M21-D | EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.05 | <0.05 | 0.00 | No Limit |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 515171)** | | | | | | | | | |

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 (%)* |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 515171) - continued** | | | | | | | | | |
| EB1617699-001 | M1-S | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| EB1617699-011 | M5-S | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 515174)** | | | | | | | | | |
| EB1617699-021 | DUP3 | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | 0.02 | 0.02 | 0.00 | No Limit |
| EB1617699-031 | M9-S | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | 0.01 | 0.01 | 0.00 | No Limit |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 515180)** | | | | | | | | | |
| EB1617699-034 | M10-S | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | 0.01 | 0.00 | No Limit |
| EB1617699-044 | M37-M | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 515182)** | | | | | | | | | |
| EB1617699-054 | 23-b | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | 0.03 | 0.03 | 0.00 | No Limit |
| EB1617699-064 | M19-S | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 515020)** | | | | | | | | | |
| EB1617699-001 | M1-S | EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| EB1617699-011 | M5-S | EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 515025)** | | | | | | | | | |
| EB1617699-022 | TRIP1 | EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| EB1617699-032 | M9-M | EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 515026)** | | | | | | | | | |
| EB1617699-042 | M31-D | EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| EB1617699-055 | 24-b | EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 515027)** | | | | | | | | | |
| EB1617699-065 | M19-D | EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 515038)** | | | | | | | | | |
| EB1617699-049 | 18 | EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 515020)** | | | | | | | | | |
| EB1617699-001 | M1-S | EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| EB1617699-011 | M5-S | EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 515025)** | | | | | | | | | |
| EB1617699-022 | TRIP1 | EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| EB1617699-032 | M9-M | EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 515026)** | | | | | | | | | |
| EB1617699-042 | M31-D | EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| EB1617699-055 | 24-b | EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 515027)** | | | | | | | | | |
| EB1617699-065 | M19-D | EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 515038)** | | | | | | | | | |
| EB1617699-049 | 18 | EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | <20 | 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: 515020)** | | | | | | | | | |
| EB1617699-001 | M1-S | 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<br>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 |
| EB1617699-011 | M5-S | 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<br>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 |
| **EP080: BTEXN (QC Lot: 515025)** | | | | | | | | | |
| EB1617699-022 | TRIP1 | 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<br>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 |
| EB1617699-032 | M9-M | 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<br>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 |
| **EP080: BTEXN (QC Lot: 515026)** | | | | | | | | | |
| EB1617699-042 | M31-D | 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<br>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 |
| EB1617699-055 | 24-b | 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 |

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: 515026) - continued** | | | | | | | | | |
| EB1617699-055 | 24-b | EP080: meta- & para-Xylene | 108-38-3<br>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 |
| **EP080: BTEXN (QC Lot: 515027)** | | | | | | | | | |
| EB1617699-065 | M19-D | 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<br>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 |
| **EP080: BTEXN (QC Lot: 515038)** | | | | | | | | | |
| EB1617699-049 | 18 | 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<br>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 |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 515250)** | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 1 | mg/L | <1 | 150 mg/L | 101 | 84 | 120 |
| | | | | <1 | 1000 mg/L | 96.4 | 84 | 120 |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 515251)** | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 1 | mg/L | <1 | 150 mg/L | 94.1 | 84 | 120 |
| | | | | <1 | 1000 mg/L | 96.0 | 84 | 120 |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 515254)** | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 1 | mg/L | <1 | 150 mg/L | 102 | 84 | 120 |
| | | | | <1 | 1000 mg/L | 96.4 | 84 | 120 |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 515255)** | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 1 | mg/L | <1 | 150 mg/L | 102 | 84 | 120 |
| | | | | <1 | 1000 mg/L | 99.3 | 84 | 120 |
| **EG035F: Dissolved Mercury by FIMS (QCLot: 515772)** | | | | | | | | |
| EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | 0.01 mg/L | 91.1 | 84 | 118 |
| **EG035F: Dissolved Mercury by FIMS (QCLot: 515773)** | | | | | | | | |
| EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | 0.01 mg/L | 90.8 | 84 | 118 |
| **EG035F: Dissolved Mercury by FIMS (QCLot: 515776)** | | | | | | | | |
| EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | 0.01 mg/L | 86.5 | 84 | 118 |
| **EG035F: Dissolved Mercury by FIMS (QCLot: 515777)** | | | | | | | | |
| EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | 0.01 mg/L | 89.8 | 84 | 118 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 515823)** | | | | | | | | |
| EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | 0.01 mg/L | 90.7 | 80 | 100 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 515824)** | | | | | | | | |
| EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | 0.01 mg/L | 91.4 | 80 | 100 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 515825)** | | | | | | | | |
| EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | 0.01 mg/L | 91.8 | 80 | 100 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 515826)** | | | | | | | | |
| EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | 0.01 mg/L | 91.2 | 80 | 100 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 515559)** | | | | | | | | |
| EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 88.5 | 85 | 118 |
| EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 98.5 | 87 | 116 |
| EG093A-F: Barium | 7440-39-3 | 1 | µg/L | <1 | 50 µg/L | 95.2 | 87 | 114 |
| EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | 10 µg/L | 100 | 88 | 114 |
| EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | 10 µg/L | 99.4 | 83 | 115 |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 515559) - continued** | | | | | | | | |
| EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | 10 µg/L | 99.3 | 86 | 116 |
| EG093A-F: Copper | 7440-50-8 | 1 | µg/L | <1 | 20 µg/L | 97.9 | 81 | 117 |
| EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | 10 µg/L | 95.4 | 80 | 117 |
| EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 95.8 | 87 | 117 |
| EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | <10 | 50 µg/L | 96.9 | 85 | 117 |
| EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | 10 µg/L | 89.0 | 82 | 118 |
| EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 113 | 89 | 117 |
| EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | 20 µg/L | 92.6 | 81 | 120 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 515560)** | | | | | | | | |
| EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | 50 µg/L | 89.1 | 78 | 123 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 515561)** | | | | | | | | |
| EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | 50 µg/L | 98.6 | 78 | 123 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 515562)** | | | | | | | | |
| EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 95.2 | 85 | 118 |
| EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 97.7 | 87 | 116 |
| EG093A-F: Barium | 7440-39-3 | 1 | µg/L | <1 | 50 µg/L | 99.0 | 87 | 114 |
| EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | 10 µg/L | 98.8 | 88 | 114 |
| EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | 10 µg/L | 106 | 83 | 115 |
| EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | 10 µg/L | 104 | 86 | 116 |
| EG093A-F: Copper | 7440-50-8 | 1 | µg/L | <1 | 20 µg/L | 103 | 81 | 117 |
| EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | 10 µg/L | 98.6 | 80 | 117 |
| EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 100 | 87 | 117 |
| EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | <10 | 50 µg/L | 102 | 85 | 117 |
| EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | 10 µg/L | 87.2 | 82 | 118 |
| EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 97.8 | 89 | 117 |
| EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | 20 µg/L | 104 | 81 | 120 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 515567)** | | | | | | | | |
| EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | 50 µg/L | 99.6 | 78 | 123 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 515568)** | | | | | | | | |
| EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 103 | 85 | 118 |
| EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 100 | 87 | 116 |
| EG093A-F: Barium | 7440-39-3 | 1 | µg/L | <1 | 50 µg/L | 104 | 87 | 114 |
| EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | 10 µg/L | 102 | 88 | 114 |
| EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | 10 µg/L | 102 | 83 | 115 |
| EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | 10 µg/L | 102 | 86 | 116 |
| EG093A-F: Copper | 7440-50-8 | 1 | µg/L | <1 | 20 µg/L | 106 | 81 | 117 |
| EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | 10 µg/L | 110 | 80 | 117 |
| EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 107 | 87 | 117 |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 515568) - continued** | | | | | | | | |
| EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | <10 | 50 µg/L | 104 | 85 | 117 |
| EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | 10 µg/L | 97.8 | 82 | 118 |
| EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 96.7 | 89 | 117 |
| EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | 20 µg/L | 100 | 81 | 120 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 515569)** | | | | | | | | |
| EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | 50 µg/L | 100 | 78 | 123 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 515570)** | | | | | | | | |
| EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 98.0 | 85 | 118 |
| EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 98.7 | 87 | 116 |
| EG093A-F: Barium | 7440-39-3 | 1 | µg/L | <1 | 50 µg/L | 104 | 87 | 114 |
| EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | 10 µg/L | 100 | 88 | 114 |
| EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | 10 µg/L | 99.6 | 83 | 115 |
| EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | 10 µg/L | 103 | 86 | 116 |
| EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | 10 µg/L | 109 | 80 | 117 |
| EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 99.0 | 87 | 117 |
| EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | <10 | 50 µg/L | 102 | 85 | 117 |
| EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 95.8 | 89 | 117 |
| EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | 20 µg/L | 98.1 | 81 | 120 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 515572)** | | | | | | | | |
| EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 95.8 | 85 | 120 |
| EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 104 | 86 | 117 |
| EG093A-T: Barium | 7440-39-3 | 1 | µg/L | <1 | 50 µg/L | 93.9 | 84 | 118 |
| EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | 10 µg/L | 103 | 84 | 115 |
| EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | 10 µg/L | 107 | 84 | 120 |
| EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | 10 µg/L | 106 | 85 | 116 |
| EG093A-T: Copper | 7440-50-8 | 1 | µg/L | <1 | 20 µg/L | 101 | 84 | 119 |
| EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | 10 µg/L | 102 | 84 | 120 |
| EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 97.7 | 80 | 120 |
| EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | <10 | 50 µg/L | 97.0 | 83 | 117 |
| EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | 10 µg/L | 90.3 | 83 | 114 |
| EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 102 | 84 | 120 |
| EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | 20 µg/L | 101 | 81 | 124 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 515573)** | | | | | | | | |
| EG093B-T: Iron | 7439-89-6 | 5 | µg/L | <5 | 50 µg/L | 98.8 | 80 | 128 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 515574)** | | | | | | | | |
| EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 98.6 | 85 | 120 |
| EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 111 | 86 | 117 |
| EG093A-T: Barium | 7440-39-3 | 1 | µg/L | <1 | 50 µg/L | 96.2 | 84 | 118 |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 515574) - continued** | | | | | | | | |
| EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | 10 µg/L | 98.7 | 84 | 115 |
| EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | 10 µg/L | 104 | 84 | 120 |
| EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | 10 µg/L | 112 | 85 | 116 |
| EG093A-T: Copper | 7440-50-8 | 1 | µg/L | <1 | 20 µg/L | 106 | 84 | 119 |
| EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | 10 µg/L | 99.6 | 84 | 120 |
| EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 110 | 80 | 120 |
| EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | <10 | 50 µg/L | 97.5 | 83 | 117 |
| EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | 10 µg/L | 93.0 | 83 | 114 |
| EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 96.1 | 84 | 120 |
| EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | 20 µg/L | 97.6 | 81 | 124 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 515575)** | | | | | | | | |
| EG093B-T: Iron | 7439-89-6 | 5 | µg/L | <5 | 50 µg/L | 118 | 80 | 128 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 515576)** | | | | | | | | |
| EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 98.9 | 85 | 120 |
| EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 107 | 86 | 117 |
| EG093A-T: Barium | 7440-39-3 | 1 | µg/L | <1 | 50 µg/L | 100 | 84 | 118 |
| EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | 10 µg/L | 106 | 84 | 115 |
| EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | 10 µg/L | 104 | 84 | 120 |
| EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | 10 µg/L | 108 | 85 | 116 |
| EG093A-T: Copper | 7440-50-8 | 1 | µg/L | <1 | 20 µg/L | 108 | 84 | 119 |
| EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | 10 µg/L | 101 | 84 | 120 |
| EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 110 | 80 | 120 |
| EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | <10 | 50 µg/L | 93.8 | 83 | 117 |
| EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | 10 µg/L | 96.7 | 83 | 114 |
| EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 101 | 84 | 120 |
| EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | 20 µg/L | 94.2 | 81 | 124 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 515577)** | | | | | | | | |
| EG093B-T: Iron | 7439-89-6 | 5 | µg/L | <5 | 50 µg/L | 107 | 80 | 128 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 515578)** | | | | | | | | |
| EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 97.2 | 85 | 120 |
| EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 110 | 86 | 117 |
| EG093A-T: Barium | 7440-39-3 | 1 | µg/L | <1 | 50 µg/L | 101 | 84 | 118 |
| EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | 10 µg/L | 105 | 84 | 115 |
| EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | 10 µg/L | 105 | 84 | 120 |
| EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | 10 µg/L | 113 | 85 | 116 |
| EG093A-T: Copper | 7440-50-8 | 1 | µg/L | <1 | 20 µg/L | 106 | 84 | 119 |
| EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | 10 µg/L | 103 | 84 | 120 |
| EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 109 | 80 | 120 |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 515578) - continued** | | | | | | | | |
| EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | <10 | 50 µg/L | 93.7 | 83 | 117 |
| EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | 10 µg/L | 93.4 | 83 | 114 |
| EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 116 | 84 | 120 |
| EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | 20 µg/L | 98.6 | 81 | 124 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 515579)** | | | | | | | | |
| EG093B-T: Iron | 7439-89-6 | 5 | µg/L | <5 | 50 µg/L | 112 | 80 | 128 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 518008)** | | | | | | | | |
| EG094B-F: Iron | 7439-89-6 | 2 | µg/L | <2 | 50 µg/L | 107 | 80 | 120 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 518009)** | | | | | | | | |
| EG094A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 102 | 80 | 120 |
| EG094A-F: Arsenic | 7440-38-2 | 0.2 | µg/L | <0.2 | 10 µg/L | 99.6 | 80 | 120 |
| EG094A-F: Barium | 7440-39-3 | 0.5 | µg/L | <0.5 | 50 µg/L | 110 | 80 | 120 |
| EG094A-F: Cadmium | 7440-43-9 | 0.05 | µg/L | <0.05 | 10 µg/L | 107 | 80 | 120 |
| EG094A-F: Chromium | 7440-47-3 | 0.2 | µg/L | <0.2 | 10 µg/L | 99.6 | 80 | 120 |
| EG094A-F: Cobalt | 7440-48-4 | 0.1 | µg/L | <0.1 | 10 µg/L | 109 | 80 | 120 |
| EG094A-F: Copper | 7440-50-8 | 0.5 | µg/L | <0.5 | 20 µg/L | 107 | 80 | 120 |
| EG094A-F: Lead | 7439-92-1 | 0.1 | µg/L | <0.1 | 10 µg/L | 100 | 80 | 120 |
| EG094A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 107 | 80 | 120 |
| EG094A-F: Strontium | 7440-24-6 | 1 | µg/L | <1 | 50 µg/L | 109 | 80 | 120 |
| EG094A-F: Tin | 7440-31-5 | 0.2 | µg/L | <0.2 | 10 µg/L | 88.4 | 80 | 120 |
| EG094A-F: Vanadium | 7440-62-2 | 0.2 | µg/L | <0.2 | 10 µg/L | 111 | 80 | 120 |
| EG094A-F: Zinc | 7440-66-6 | 1 | µg/L | <1 | 20 µg/L | 104 | 80 | 120 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 520729)** | | | | | | | | |
| EG094B-F: Iron | 7439-89-6 | 2 | µg/L | <2 | 50 µg/L | 113 | 80 | 120 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 520730)** | | | | | | | | |
| EG094A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 114 | 80 | 120 |
| EG094A-F: Arsenic | 7440-38-2 | 0.2 | µg/L | <0.2 | 10 µg/L | 112 | 80 | 120 |
| EG094A-F: Barium | 7440-39-3 | 0.5 | µg/L | <0.5 | 50 µg/L | 103 | 80 | 120 |
| EG094A-F: Cadmium | 7440-43-9 | 0.05 | µg/L | <0.05 | 10 µg/L | 111 | 80 | 120 |
| EG094A-F: Chromium | 7440-47-3 | 0.2 | µg/L | <0.2 | 10 µg/L | 114 | 80 | 120 |
| EG094A-F: Cobalt | 7440-48-4 | 0.1 | µg/L | <0.1 | 10 µg/L | 115 | 80 | 120 |
| EG094A-F: Copper | 7440-50-8 | 0.5 | µg/L | <0.5 | 20 µg/L | 116 | 80 | 120 |
| EG094A-F: Lead | 7439-92-1 | 0.1 | µg/L | <0.1 | 10 µg/L | 109 | 80 | 120 |
| EG094A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 114 | 80 | 120 |
| EG094A-F: Strontium | 7440-24-6 | 1 | µg/L | <1 | 50 µg/L | 108 | 80 | 120 |
| EG094A-F: Tin | 7440-31-5 | 0.2 | µg/L | <0.2 | 10 µg/L | 120 | 80 | 120 |
| EG094A-F: Vanadium | 7440-62-2 | 0.2 | µg/L | <0.2 | 10 µg/L | 120 | 80 | 120 |
| EG094A-F: Zinc | 7440-66-6 | 1 | µg/L | <1 | 20 µg/L | 110 | 80 | 120 |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 517990)** | | | | | | | | |
| EG094B-T: Iron | 7439-89-6 | 2 | µg/L | <2 | 50 µg/L | 108 | 80 | 120 |
| **EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 517991)** | | | | | | | | |
| EG094A-T: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 104 | 80 | 120 |
| EG094A-T: Arsenic | 7440-38-2 | 0.2 | µg/L | <0.2 | 10 µg/L | 102 | 80 | 120 |
| EG094A-T: Barium | 7440-39-3 | 0.5 | µg/L | <0.5 | 50 µg/L | 105 | 80 | 120 |
| EG094A-T: Cadmium | 7440-43-9 | 0.05 | µg/L | <0.05 | 10 µg/L | 100 | 80 | 120 |
| EG094A-T: Chromium | 7440-47-3 | 0.2 | µg/L | <0.2 | 10 µg/L | 102 | 80 | 120 |
| EG094A-T: Cobalt | 7440-48-4 | 0.1 | µg/L | <0.1 | 10 µg/L | 110 | 80 | 120 |
| EG094A-T: Copper | 7440-50-8 | 0.5 | µg/L | <0.5 | 20 µg/L | 109 | 80 | 120 |
| EG094A-T: Lead | 7439-92-1 | 0.1 | µg/L | <0.1 | 10 µg/L | 99.8 | 80 | 120 |
| EG094A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 108 | 80 | 120 |
| EG094A-T: Strontium | 7440-24-6 | 1 | µg/L | <1 | 50 µg/L | 111 | 80 | 120 |
| EG094A-T: Tin | 7440-31-5 | 0.2 | µg/L | <0.2 | 10 µg/L | 110 | 80 | 120 |
| EG094A-T: Vanadium | 7440-62-2 | 0.2 | µg/L | <0.2 | 10 µg/L | 115 | 80 | 120 |
| EG094A-T: Zinc | 7440-66-6 | 1 | µg/L | <1 | 20 µg/L | 98.9 | 80 | 120 |
| **EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 520736)** | | | | | | | | |
| EG094B-T: Iron | 7439-89-6 | 2 | µg/L | <2 | 50 µg/L | 107 | 80 | 120 |
| **EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 520737)** | | | | | | | | |
| EG094A-T: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 106 | 80 | 120 |
| EG094A-T: Arsenic | 7440-38-2 | 0.2 | µg/L | <0.2 | 10 µg/L | 114 | 80 | 120 |
| EG094A-T: Barium | 7440-39-3 | 0.5 | µg/L | <0.5 | 50 µg/L | 108 | 80 | 120 |
| EG094A-T: Cadmium | 7440-43-9 | 0.05 | µg/L | <0.05 | 10 µg/L | 110 | 80 | 120 |
| EG094A-T: Chromium | 7440-47-3 | 0.2 | µg/L | <0.2 | 10 µg/L | 118 | 80 | 120 |
| EG094A-T: Cobalt | 7440-48-4 | 0.1 | µg/L | <0.1 | 10 µg/L | 118 | 80 | 120 |
| EG094A-T: Copper | 7440-50-8 | 0.5 | µg/L | <0.5 | 20 µg/L | 110 | 80 | 120 |
| EG094A-T: Lead | 7439-92-1 | 0.1 | µg/L | <0.1 | 10 µg/L | 109 | 80 | 120 |
| EG094A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 119 | 80 | 120 |
| EG094A-T: Strontium | 7440-24-6 | 1 | µg/L | <1 | 50 µg/L | 116 | 80 | 120 |
| EG094A-T: Tin | 7440-31-5 | 0.2 | µg/L | <0.2 | 10 µg/L | 117 | 80 | 120 |
| EG094A-T: Vanadium | 7440-62-2 | 0.2 | µg/L | <0.2 | 10 µg/L | 119 | 80 | 120 |
| EG094A-T: Zinc | 7440-66-6 | 1 | µg/L | <1 | 20 µg/L | 108 | 80 | 120 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 515623)** | | | | | | | | |
| EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | <0.01 | 1 mg/L | 91.3 | 86 | 112 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 515625)** | | | | | | | | |
| EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | <0.01 | 1 mg/L | 95.4 | 86 | 112 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 515627)** | | | | | | | | |
| EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | <0.01 | 1 mg/L | 95.8 | 86 | 112 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 515629)** | | | | | | | | |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 515629) - continued** | | | | | | | | |
| EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | <0.01 | 1 mg/L | 95.7 | 86 | 112 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 515172)** | | | | | | | | |
| EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 102 | 90 | 110 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 515173)** | | | | | | | | |
| EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 101 | 90 | 110 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 515179)** | | | | | | | | |
| EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 97.3 | 90 | 110 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 515181)** | | | | | | | | |
| EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 97.8 | 90 | 110 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 515624)** | | | | | | | | |
| EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | 0.5 mg/L | 98.5 | 89 | 115 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 515626)** | | | | | | | | |
| EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | 0.5 mg/L | 97.3 | 89 | 115 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 515628)** | | | | | | | | |
| EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | 0.5 mg/L | 99.8 | 89 | 115 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 515630)** | | | | | | | | |
| EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | 0.5 mg/L | 99.2 | 89 | 115 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 516874)** | | | | | | | | |
| EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.1 | 10 mg/L | 88.4 | 70 | 111 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 516876)** | | | | | | | | |
| EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.1 | 10 mg/L | 90.0 | 70 | 111 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 516878)** | | | | | | | | |
| EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.1 | 10 mg/L | 88.8 | 70 | 111 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 516880)** | | | | | | | | |
| EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.1 | 10 mg/L | 85.2 | 70 | 111 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 516873)** | | | | | | | | |
| EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.01 | 4.42 mg/L | 102 | 77 | 109 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 516875)** | | | | | | | | |
| EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.01 | 4.42 mg/L | 106 | 77 | 109 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 516877)** | | | | | | | | |
| EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.01 | 4.42 mg/L | 104 | 77 | 109 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 516879)** | | | | | | | | |
| EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.01 | 4.42 mg/L | 104 | 77 | 109 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 515171)** | | | | | | | | |
| EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 103 | 88 | 115 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 515174)** | | | | | | | | |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 515174) - continued** | | | | | | | | |
| EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 103 | 88 | 115 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 515180)** | | | | | | | | |
| EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 105 | 88 | 115 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 515182)** | | | | | | | | |
| EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 106 | 88 | 115 |
| **EP008: Chlorophyll (QCLot: 515734)** | | | | | | | | |
| EP008: Chlorophyll a | ---- | 1 | mg/m³ | <1 | 20 mg/m³ | 113 | 85 | 123 |
| **EP008: Chlorophyll (QCLot: 515735)** | | | | | | | | |
| EP008: Chlorophyll a | ---- | 1 | mg/m³ | <1 | 20 mg/m³ | 110 | 85 | 123 |
| **EP008: Chlorophyll (QCLot: 515736)** | | | | | | | | |
| EP008: Chlorophyll a | ---- | 1 | mg/m³ | <1 | 20 mg/m³ | 107 | 85 | 123 |
| **EP008: Chlorophyll (QCLot: 515737)** | | | | | | | | |
| EP008: Chlorophyll a | ---- | 1 | mg/m³ | <1 | 20 mg/m³ | 106 | 85 | 123 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 515050)** | | | | | | | | |
| EP075(SIM): Naphthalene | 91-20-3 | 1 | µg/L | <1.0 | 10 µg/L | # 107 | 47 | 101 |
| EP075(SIM): Acenaphthylene | 208-96-8 | 1 | µg/L | <1.0 | 10 µg/L | 96.2 | 46 | 109 |
| EP075(SIM): Acenaphthene | 83-32-9 | 1 | µg/L | <1.0 | 10 µg/L | # 106 | 50 | 104 |
| EP075(SIM): Fluorene | 86-73-7 | 1 | µg/L | <1.0 | 10 µg/L | # 115 | 50 | 114 |
| EP075(SIM): Phenanthrene | 85-01-8 | 1 | µg/L | <1.0 | 10 µg/L | 88.3 | 49 | 114 |
| EP075(SIM): Anthracene | 120-12-7 | 1 | µg/L | <1.0 | 10 µg/L | 73.5 | 48 | 113 |
| EP075(SIM): Fluoranthene | 206-44-0 | 1 | µg/L | <1.0 | 10 µg/L | 77.0 | 48 | 120 |
| EP075(SIM): Pyrene | 129-00-0 | 1 | µg/L | <1.0 | 10 µg/L | 76.8 | 48 | 119 |
| EP075(SIM): Benz(a)anthracene | 56-55-3 | 1 | µg/L | <1.0 | 10 µg/L | 63.9 | 48 | 125 |
| EP075(SIM): Chrysene | 218-01-9 | 1 | µg/L | <1.0 | 10 µg/L | 73.8 | 45 | 119 |
| EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2<br>205-82-3 | 1 | µg/L | <1.0 | 10 µg/L | 100 | 43 | 130 |
| EP075(SIM): Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | <1.0 | 10 µg/L | 106 | 46 | 130 |
| EP075(SIM): Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | <0.5 | 10 µg/L | 85.8 | 49 | 125 |
| EP075(SIM): Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | <1.0 | 10 µg/L | 97.0 | 40 | 132 |
| EP075(SIM): Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | <1.0 | 10 µg/L | 98.5 | 42 | 140 |
| EP075(SIM): Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | <1.0 | 10 µg/L | 101 | 39 | 136 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 515274)** | | | | | | | | |
| EP075(SIM): Naphthalene | 91-20-3 | 1 | µg/L | <1.0 | 10 µg/L | 79.3 | 47 | 101 |
| EP075(SIM): Acenaphthylene | 208-96-8 | 1 | µg/L | <1.0 | 10 µg/L | 82.6 | 46 | 109 |
| EP075(SIM): Acenaphthene | 83-32-9 | 1 | µg/L | <1.0 | 10 µg/L | 81.7 | 50 | 104 |
| EP075(SIM): Fluorene | 86-73-7 | 1 | µg/L | <1.0 | 10 µg/L | 81.9 | 50 | 114 |
| EP075(SIM): Phenanthrene | 85-01-8 | 1 | µg/L | <1.0 | 10 µg/L | 82.5 | 49 | 114 |
| EP075(SIM): Anthracene | 120-12-7 | 1 | µg/L | <1.0 | 10 µg/L | 81.1 | 48 | 113 |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | |
|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 515274) - continued** | | | | | | | | |
| EP075(SIM): Fluoranthene | 206-44-0 | 1 | µg/L | <1.0 | 10 µg/L | 79.1 | 48 | 120 |
| EP075(SIM): Pyrene | 129-00-0 | 1 | µg/L | <1.0 | 10 µg/L | 78.8 | 48 | 119 |
| EP075(SIM): Benz(a)anthracene | 56-55-3 | 1 | µg/L | <1.0 | 10 µg/L | 85.4 | 48 | 125 |
| EP075(SIM): Chrysene | 218-01-9 | 1 | µg/L | <1.0 | 10 µg/L | 97.1 | 45 | 119 |
| EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2<br>205-82-3 | 1 | µg/L | <1.0 | 10 µg/L | 91.1 | 43 | 130 |
| EP075(SIM): Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | <1.0 | 10 µg/L | 73.7 | 46 | 130 |
| EP075(SIM): Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | <0.5 | 10 µg/L | 82.7 | 49 | 125 |
| EP075(SIM): Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | <1.0 | 10 µg/L | 88.0 | 40 | 132 |
| EP075(SIM): Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | <1.0 | 10 µg/L | 90.5 | 42 | 140 |
| EP075(SIM): Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | <1.0 | 10 µg/L | 83.9 | 39 | 136 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 515276)** | | | | | | | | |
| EP075(SIM): Naphthalene | 91-20-3 | 1 | µg/L | <1.0 | 10 µg/L | 89.6 | 47 | 101 |
| EP075(SIM): Acenaphthylene | 208-96-8 | 1 | µg/L | <1.0 | 10 µg/L | # 116 | 46 | 109 |
| EP075(SIM): Acenaphthene | 83-32-9 | 1 | µg/L | <1.0 | 10 µg/L | 92.1 | 50 | 104 |
| EP075(SIM): Fluorene | 86-73-7 | 1 | µg/L | <1.0 | 10 µg/L | 102 | 50 | 114 |
| EP075(SIM): Phenanthrene | 85-01-8 | 1 | µg/L | <1.0 | 10 µg/L | 93.4 | 49 | 114 |
| EP075(SIM): Anthracene | 120-12-7 | 1 | µg/L | <1.0 | 10 µg/L | 92.8 | 48 | 113 |
| EP075(SIM): Fluoranthene | 206-44-0 | 1 | µg/L | <1.0 | 10 µg/L | 92.9 | 48 | 120 |
| EP075(SIM): Pyrene | 129-00-0 | 1 | µg/L | <1.0 | 10 µg/L | 94.3 | 48 | 119 |
| EP075(SIM): Benz(a)anthracene | 56-55-3 | 1 | µg/L | <1.0 | 10 µg/L | 112 | 48 | 125 |
| EP075(SIM): Chrysene | 218-01-9 | 1 | µg/L | <1.0 | 10 µg/L | # 124 | 45 | 119 |
| EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2<br>205-82-3 | 1 | µg/L | <1.0 | 10 µg/L | 88.8 | 43 | 130 |
| EP075(SIM): Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | <1.0 | 10 µg/L | 96.9 | 46 | 130 |
| EP075(SIM): Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | <0.5 | 10 µg/L | 92.3 | 49 | 125 |
| EP075(SIM): Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | <1.0 | 10 µg/L | 95.3 | 40 | 132 |
| EP075(SIM): Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | <1.0 | 10 µg/L | 97.7 | 42 | 140 |
| EP075(SIM): Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | <1.0 | 10 µg/L | 91.5 | 39 | 136 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 515282)** | | | | | | | | |
| EP075(SIM): Naphthalene | 91-20-3 | 1 | µg/L | <1.0 | 10 µg/L | # 106 | 47 | 101 |
| EP075(SIM): Acenaphthylene | 208-96-8 | 1 | µg/L | <1.0 | 10 µg/L | 98.8 | 46 | 109 |
| EP075(SIM): Acenaphthene | 83-32-9 | 1 | µg/L | <1.0 | 10 µg/L | 103 | 50 | 104 |
| EP075(SIM): Fluorene | 86-73-7 | 1 | µg/L | <1.0 | 10 µg/L | # 116 | 50 | 114 |
| EP075(SIM): Phenanthrene | 85-01-8 | 1 | µg/L | <1.0 | 10 µg/L | 91.5 | 49 | 114 |
| EP075(SIM): Anthracene | 120-12-7 | 1 | µg/L | <1.0 | 10 µg/L | 113 | 48 | 113 |
| EP075(SIM): Fluoranthene | 206-44-0 | 1 | µg/L | <1.0 | 10 µg/L | 115 | 48 | 120 |
| EP075(SIM): Pyrene | 129-00-0 | 1 | µg/L | <1.0 | 10 µg/L | 113 | 48 | 119 |
| EP075(SIM): Benz(a)anthracene | 56-55-3 | 1 | µg/L | <1.0 | 10 µg/L | 101 | 48 | 125 |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 515282) - continued** | | | | | | | | |
| EP075(SIM): Chrysene | 218-01-9 | 1 | µg/L | <1.0 | 10 µg/L | 107 | 45 | 119 |
| EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2<br>205-82-3 | 1 | µg/L | <1.0 | 10 µg/L | 92.0 | 43 | 130 |
| EP075(SIM): Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | <1.0 | 10 µg/L | 119 | 46 | 130 |
| EP075(SIM): Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | <0.5 | 10 µg/L | 89.4 | 49 | 125 |
| EP075(SIM): Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | <1.0 | 10 µg/L | 98.4 | 40 | 132 |
| EP075(SIM): Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | <1.0 | 10 µg/L | 100 | 42 | 140 |
| EP075(SIM): Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | <1.0 | 10 µg/L | 102 | 39 | 136 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 515020)** | | | | | | | | |
| EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | 160 µg/L | 103 | 76 | 122 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 515025)** | | | | | | | | |
| EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | 160 µg/L | 80.0 | 76 | 122 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 515026)** | | | | | | | | |
| EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | 160 µg/L | 90.7 | 76 | 122 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 515027)** | | | | | | | | |
| EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | 160 µg/L | 91.4 | 76 | 122 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 515038)** | | | | | | | | |
| EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | 160 µg/L | 92.8 | 76 | 122 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 515051)** | | | | | | | | |
| EP071: C10 - C14 Fraction | ---- | 50 | µg/L | <50 | 1211 µg/L | 81.0 | 38 | 114 |
| EP071: C15 - C28 Fraction | ---- | 100 | µg/L | <100 | 2103 µg/L | 77.4 | 50 | 132 |
| EP071: C29 - C36 Fraction | ---- | 50 | µg/L | <50 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 515273)** | | | | | | | | |
| EP071: C10 - C14 Fraction | ---- | 50 | µg/L | <50 | 1211 µg/L | 113 | 38 | 114 |
| EP071: C15 - C28 Fraction | ---- | 100 | µg/L | <100 | 2103 µg/L | 112 | 50 | 132 |
| EP071: C29 - C36 Fraction | ---- | 50 | µg/L | <50 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 515275)** | | | | | | | | |
| EP071: C10 - C14 Fraction | ---- | 50 | µg/L | <50 | 1211 µg/L | 110 | 38 | 114 |
| EP071: C15 - C28 Fraction | ---- | 100 | µg/L | <100 | 2103 µg/L | 109 | 50 | 132 |
| EP071: C29 - C36 Fraction | ---- | 50 | µg/L | <50 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 515277)** | | | | | | | | |
| EP071-SV: C10 - C14 Fraction | ---- | 50 | µg/L | <50 | 1211 µg/L | 110 | 38 | 114 |
| EP071-SV: C15 - C28 Fraction | ---- | 100 | µg/L | <100 | 2103 µg/L | 109 | 50 | 132 |
| EP071-SV: C29 - C36 Fraction | ---- | 50 | µg/L | <50 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 515281)** | | | | | | | | |
| EP071: C10 - C14 Fraction | ---- | 50 | µg/L | <50 | 1211 µg/L | 80.4 | 38 | 114 |
| EP071: C15 - C28 Fraction | ---- | 100 | µg/L | <100 | 2103 µg/L | 90.0 | 50 | 132 |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 515281) - continued** | | | | | | | | |
| EP071: C29 - C36 Fraction | ---- | 50 | µg/L | <50 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515020)** | | | | | | | | |
| EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | 185 µg/L | 99.9 | 75 | 123 |
| EP080: C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | <20 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515025)** | | | | | | | | |
| EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | 185 µg/L | 77.9 | 75 | 123 |
| EP080: C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | <20 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515026)** | | | | | | | | |
| EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | 185 µg/L | 87.8 | 75 | 123 |
| EP080: C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | <20 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515027)** | | | | | | | | |
| EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | 185 µg/L | 91.0 | 75 | 123 |
| EP080: C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | <20 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515038)** | | | | | | | | |
| EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | 185 µg/L | 91.2 | 75 | 123 |
| EP080: C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | <20 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515051)** | | | | | | | | |
| EP071: >C10 - C16 Fraction | ---- | 100 | µg/L | <100 | 1696 µg/L | 77.8 | 43 | 119 |
| EP071: >C16 - C34 Fraction | ---- | 100 | µg/L | <100 | 1496 µg/L | 80.1 | 49 | 134 |
| EP071: >C34 - C40 Fraction | ---- | 100 | µg/L | <100 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515273)** | | | | | | | | |
| EP071: >C10 - C16 Fraction | ---- | 100 | µg/L | <100 | 1696 µg/L | 110 | 43 | 119 |
| EP071: >C16 - C34 Fraction | ---- | 100 | µg/L | <100 | 1496 µg/L | 116 | 49 | 134 |
| EP071: >C34 - C40 Fraction | ---- | 100 | µg/L | <100 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515275)** | | | | | | | | |
| EP071: >C10 - C16 Fraction | ---- | 100 | µg/L | <100 | 1696 µg/L | 107 | 43 | 119 |
| EP071: >C16 - C34 Fraction | ---- | 100 | µg/L | <100 | 1496 µg/L | 112 | 49 | 134 |
| EP071: >C34 - C40 Fraction | ---- | 100 | µg/L | <100 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515277)** | | | | | | | | |
| EP071-SV: >C10 - C16 Fraction | ---- | 100 | µg/L | <100 | 1696 µg/L | 107 | 43 | 119 |
| EP071-SV: >C16 - C34 Fraction | ---- | 100 | µg/L | <100 | 1496 µg/L | 112 | 49 | 134 |
| EP071-SV: >C34 - C40 Fraction | ---- | 100 | µg/L | <100 | ---- | ---- | ---- | ---- |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515281)** | | | | | | | | |
| EP071: >C10 - C16 Fraction | ---- | 100 | µg/L | <100 | 1696 µg/L | 83.0 | 43 | 119 |
| EP071: >C16 - C34 Fraction | ---- | 100 | µg/L | <100 | 1496 µg/L | 91.4 | 49 | 134 |
| EP071: >C34 - C40 Fraction | ---- | 100 | µg/L | <100 | ---- | ---- | ---- | ---- |
| **EP080: BTEXN (QCLot: 515020)** | | | | | | | | |
| EP080: Benzene | 71-43-2 | 1 | µg/L | <1 | 10 µg/L | 93.5 | 77 | 119 |
| EP080: Toluene | 108-88-3 | 2 | µg/L | <2 | 10 µg/L | 103 | 78 | 122 |
| EP080: Ethylbenzene | 100-41-4 | 2 | µg/L | <2 | 10 µg/L | 106 | 78 | 119 |
| EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 2 | µg/L | <2 | 20 µg/L | 108 | 77 | 121 |
| EP080: ortho-Xylene | 95-47-6 | 2 | µg/L | <2 | 10 µg/L | 110 | 76 | 121 |
| EP080: Total Xylenes | 1330-20-7 | 2 | µg/L | <2 | ---- | ---- | ---- | ---- |
| EP080: Sum of BTEX | ---- | 1 | µg/L | <1 | ---- | ---- | ---- | ---- |
| EP080: Naphthalene | 91-20-3 | 5 | µg/L | <5 | 10 µg/L | 107 | 75 | 120 |
| **EP080: BTEXN (QCLot: 515025)** | | | | | | | | |
| EP080: Benzene | 71-43-2 | 1 | µg/L | <1 | 10 µg/L | 83.8 | 77 | 119 |
| EP080: Toluene | 108-88-3 | 2 | µg/L | <2 | 10 µg/L | 91.6 | 78 | 122 |
| EP080: Ethylbenzene | 100-41-4 | 2 | µg/L | <2 | 10 µg/L | 90.2 | 78 | 119 |
| EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 2 | µg/L | <2 | 20 µg/L | 89.3 | 77 | 121 |
| EP080: ortho-Xylene | 95-47-6 | 2 | µg/L | <2 | 10 µg/L | 91.1 | 76 | 121 |
| EP080: Total Xylenes | 1330-20-7 | 2 | µg/L | <2 | ---- | ---- | ---- | ---- |
| EP080: Sum of BTEX | ---- | 1 | µg/L | <1 | ---- | ---- | ---- | ---- |
| EP080: Naphthalene | 91-20-3 | 5 | µg/L | <5 | 10 µg/L | 100 | 75 | 120 |
| **EP080: BTEXN (QCLot: 515026)** | | | | | | | | |
| EP080: Benzene | 71-43-2 | 1 | µg/L | <1 | 10 µg/L | 92.4 | 77 | 119 |
| EP080: Toluene | 108-88-3 | 2 | µg/L | <2 | 10 µg/L | 92.1 | 78 | 122 |
| EP080: Ethylbenzene | 100-41-4 | 2 | µg/L | <2 | 10 µg/L | 100 | 78 | 119 |
| EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 2 | µg/L | <2 | 20 µg/L | 101 | 77 | 121 |
| EP080: ortho-Xylene | 95-47-6 | 2 | µg/L | <2 | 10 µg/L | 102 | 76 | 121 |
| EP080: Total Xylenes | 1330-20-7 | 2 | µg/L | <2 | ---- | ---- | ---- | ---- |
| EP080: Sum of BTEX | ---- | 1 | µg/L | <1 | ---- | ---- | ---- | ---- |
| EP080: Naphthalene | 91-20-3 | 5 | µg/L | <5 | 10 µg/L | 100 | 75 | 120 |
| **EP080: BTEXN (QCLot: 515027)** | | | | | | | | |
| EP080: Benzene | 71-43-2 | 1 | µg/L | <1 | 10 µg/L | 88.5 | 77 | 119 |
| EP080: Toluene | 108-88-3 | 2 | µg/L | <2 | 10 µg/L | 89.4 | 78 | 122 |
| EP080: Ethylbenzene | 100-41-4 | 2 | µg/L | <2 | 10 µg/L | 96.4 | 78 | 119 |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | |
|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) |
| | | | | Result | Concentration | LCS | Low | High |
| **EP080: BTEXN (QCLot: 515027) - continued** | | | | | | | | |
| EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 2 | µg/L | <2 | 20 µg/L | 97.8 | 77 | 121 |
| EP080: ortho-Xylene | 95-47-6 | 2 | µg/L | <2 | 10 µg/L | 100 | 76 | 121 |
| EP080: Total Xylenes | 1330-20-7 | 2 | µg/L | <2 | ---- | ---- | ---- | ---- |
| EP080: Sum of BTEX | ---- | 1 | µg/L | <1 | ---- | ---- | ---- | ---- |
| EP080: Naphthalene | 91-20-3 | 5 | µg/L | <5 | 10 µg/L | 110 | 75 | 120 |
| **EP080: BTEXN (QCLot: 515038)** | | | | | | | | |
| EP080: Benzene | 71-43-2 | 1 | µg/L | <1 | 10 µg/L | 86.7 | 77 | 119 |
| EP080: Toluene | 108-88-3 | 2 | µg/L | <2 | 10 µg/L | 92.8 | 78 | 122 |
| EP080: Ethylbenzene | 100-41-4 | 2 | µg/L | <2 | 10 µg/L | 99.5 | 78 | 119 |
| EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 2 | µg/L | <2 | 20 µg/L | 103 | 77 | 121 |
| EP080: ortho-Xylene | 95-47-6 | 2 | µg/L | <2 | 10 µg/L | 102 | 76 | 121 |
| EP080: Total Xylenes | 1330-20-7 | 2 | µg/L | <2 | ---- | ---- | ---- | ---- |
| EP080: Sum of BTEX | ---- | 1 | µg/L | <1 | ---- | ---- | ---- | ---- |
| EP080: Naphthalene | 91-20-3 | 5 | µg/L | <5 | 10 µg/L | 103 | 75 | 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 | SpikeRecovery(%) | Recovery Limits (%) | |
| | | | | Concentration | MS | Low | High |
| **EG035F: Dissolved Mercury by FIMS (QCLot: 515772)** | | | | | | | |
| EB1617699-002 | M1-D | EG035F: Mercury | 7439-97-6 | 0.01 mg/L | 77.9 | 70 | 130 |
| **EG035F: Dissolved Mercury by FIMS (QCLot: 515773)** | | | | | | | |
| EB1617699-022 | TRIP1 | EG035F: Mercury | 7439-97-6 | 0.01 mg/L | 80.6 | 70 | 130 |
| **EG035F: Dissolved Mercury by FIMS (QCLot: 515776)** | | | | | | | |
| EB1617699-042 | M31-D | EG035F: Mercury | 7439-97-6 | 0.01 mg/L | 77.4 | 70 | 130 |
| **EG035F: Dissolved Mercury by FIMS (QCLot: 515777)** | | | | | | | |
| EB1617699-062 | M13-M | EG035F: Mercury | 7439-97-6 | 0.01 mg/L | 78.6 | 70 | 130 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 515823)** | | | | | | | |
| EB1617699-002 | M1-D | EG035T: Mercury | 7439-97-6 | 0.01 mg/L | 74.0 | 70 | 130 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 515824)** | | | | | | | |
| EB1617699-022 | TRIP1 | EG035T: Mercury | 7439-97-6 | 0.01 mg/L | 81.8 | 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* |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 515825)** | | | | | | | |
| EB1617699-042 | M31-D | EG035T: Mercury | 7439-97-6 | 0.01 mg/L | 82.6 | 70 | 130 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 515826)** | | | | | | | |
| EB1617699-062 | M13-M | EG035T: Mercury | 7439-97-6 | 0.01 mg/L | 80.6 | 70 | 130 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 515559)** | | | | | | | |
| EB1617699-002 | M1-D | EG093A-F: Arsenic | 7440-38-2 | 50 µg/L | 105 | 70 | 130 |
| | | EG093A-F: Barium | 7440-39-3 | 250 µg/L | 98.3 | 70 | 130 |
| | | EG093A-F: Cadmium | 7440-43-9 | 50 µg/L | 99.1 | 70 | 130 |
| | | EG093A-F: Chromium | 7440-47-3 | 50 µg/L | 102 | 70 | 130 |
| | | EG093A-F: Cobalt | 7440-48-4 | 50 µg/L | 101 | 70 | 130 |
| | | EG093A-F: Copper | 7440-50-8 | 100 µg/L | 102 | 70 | 130 |
| | | EG093A-F: Lead | 7439-92-1 | 50 µg/L | 102 | 70 | 130 |
| | | EG093A-F: Nickel | 7440-02-0 | 50 µg/L | 99.5 | 70 | 130 |
| | | EG093A-F: Vanadium | 7440-62-2 | 50 µg/L | 101 | 70 | 130 |
| | | EG093A-F: Zinc | 7440-66-6 | 100 µg/L | 98.8 | 70 | 130 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 515562)** | | | | | | | |
| EB1617699-022 | TRIP1 | EG093A-F: Arsenic | 7440-38-2 | 50 µg/L | 103 | 70 | 130 |
| | | EG093A-F: Barium | 7440-39-3 | 250 µg/L | 98.1 | 70 | 130 |
| | | EG093A-F: Cadmium | 7440-43-9 | 50 µg/L | 100 | 70 | 130 |
| | | EG093A-F: Chromium | 7440-47-3 | 50 µg/L | 106 | 70 | 130 |
| | | EG093A-F: Cobalt | 7440-48-4 | 50 µg/L | 104 | 70 | 130 |
| | | EG093A-F: Copper | 7440-50-8 | 100 µg/L | 105 | 70 | 130 |
| | | EG093A-F: Lead | 7439-92-1 | 50 µg/L | 98.0 | 70 | 130 |
| | | EG093A-F: Nickel | 7440-02-0 | 50 µg/L | 103 | 70 | 130 |
| | | EG093A-F: Vanadium | 7440-62-2 | 50 µg/L | 103 | 70 | 130 |
| | | EG093A-F: Zinc | 7440-66-6 | 100 µg/L | 103 | 70 | 130 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 515570)** | | | | | | | |
| EB1617699-058 | 28 | EG093A-F: Lead | 7439-92-1 | 50 µg/L | 96.4 | 70 | 130 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 515572)** | | | | | | | |
| EB1617699-002 | M1-D | EG093A-T: Arsenic | 7440-38-2 | 50 µg/L | 106 | 70 | 130 |
| | | EG093A-T: Barium | 7440-39-3 | 250 µg/L | 96.2 | 70 | 130 |
| | | EG093A-T: Cadmium | 7440-43-9 | 50 µg/L | 101 | 70 | 130 |
| | | EG093A-T: Chromium | 7440-47-3 | 50 µg/L | 107 | 70 | 130 |
| | | EG093A-T: Cobalt | 7440-48-4 | 50 µg/L | 109 | 70 | 130 |
| | | EG093A-T: Copper | 7440-50-8 | 100 µg/L | 104 | 70 | 130 |
| | | EG093A-T: Lead | 7439-92-1 | 50 µg/L | 101 | 70 | 130 |
| | | EG093A-T: Nickel | 7440-02-0 | 50 µg/L | 104 | 70 | 130 |
| | | EG093A-T: Vanadium | 7440-62-2 | 50 µg/L | 107 | 70 | 130 |
| | | EG093A-T: Zinc | 7440-66-6 | 100 µg/L | 102 | 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 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 515574)** | | | | | | | |
| EB1617699-022 | TRIP1 | EG093A-T: Arsenic | 7440-38-2 | 50 µg/L | 111 | 70 | 130 |
| | | EG093A-T: Barium | 7440-39-3 | 250 µg/L | 98.1 | 70 | 130 |
| | | EG093A-T: Cadmium | 7440-43-9 | 50 µg/L | 104 | 70 | 130 |
| | | EG093A-T: Chromium | 7440-47-3 | 50 µg/L | 112 | 70 | 130 |
| | | EG093A-T: Cobalt | 7440-48-4 | 50 µg/L | 112 | 70 | 130 |
| | | EG093A-T: Copper | 7440-50-8 | 100 µg/L | 109 | 70 | 130 |
| | | EG093A-T: Lead | 7439-92-1 | 50 µg/L | 103 | 70 | 130 |
| | | EG093A-T: Nickel | 7440-02-0 | 50 µg/L | 111 | 70 | 130 |
| | | EG093A-T: Vanadium | 7440-62-2 | 50 µg/L | 112 | 70 | 130 |
| | | EG093A-T: Zinc | 7440-66-6 | 100 µg/L | 106 | 70 | 130 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 515576)** | | | | | | | |
| EB1617699-038 | M25-M | EG093A-T: Arsenic | 7440-38-2 | 50 µg/L | 108 | 70 | 130 |
| | | EG093A-T: Barium | 7440-39-3 | 250 µg/L | 108 | 70 | 130 |
| | | EG093A-T: Cadmium | 7440-43-9 | 50 µg/L | 106 | 70 | 130 |
| | | EG093A-T: Chromium | 7440-47-3 | 50 µg/L | 106 | 70 | 130 |
| | | EG093A-T: Cobalt | 7440-48-4 | 50 µg/L | 109 | 70 | 130 |
| | | EG093A-T: Copper | 7440-50-8 | 100 µg/L | 104 | 70 | 130 |
| | | EG093A-T: Lead | 7439-92-1 | 50 µg/L | 102 | 70 | 130 |
| | | EG093A-T: Nickel | 7440-02-0 | 50 µg/L | 110 | 70 | 130 |
| | | EG093A-T: Vanadium | 7440-62-2 | 50 µg/L | 106 | 70 | 130 |
| | | EG093A-T: Zinc | 7440-66-6 | 100 µg/L | 99.4 | 70 | 130 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 515578)** | | | | | | | |
| EB1617699-058 | 28 | EG093A-T: Arsenic | 7440-38-2 | 50 µg/L | 107 | 70 | 130 |
| | | EG093A-T: Barium | 7440-39-3 | 250 µg/L | 107 | 70 | 130 |
| | | EG093A-T: Cadmium | 7440-43-9 | 50 µg/L | 104 | 70 | 130 |
| | | EG093A-T: Chromium | 7440-47-3 | 50 µg/L | 105 | 70 | 130 |
| | | EG093A-T: Cobalt | 7440-48-4 | 50 µg/L | 108 | 70 | 130 |
| | | EG093A-T: Copper | 7440-50-8 | 100 µg/L | 105 | 70 | 130 |
| | | EG093A-T: Lead | 7439-92-1 | 50 µg/L | 104 | 70 | 130 |
| | | EG093A-T: Nickel | 7440-02-0 | 50 µg/L | 109 | 70 | 130 |
| | | EG093A-T: Vanadium | 7440-62-2 | 50 µg/L | 103 | 70 | 130 |
| | | EG093A-T: Zinc | 7440-66-6 | 100 µg/L | 98.7 | 70 | 130 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 518009)** | | | | | | | |
| EB1617699-021 | DUP3 | EG094A-F: Arsenic | 7440-38-2 | 50 µg/L | 91.2 | 70 | 130 |
| | | EG094A-F: Barium | 7440-39-3 | 250 µg/L | 106 | 70 | 130 |
| | | EG094A-F: Cadmium | 7440-43-9 | 50 µg/L | 104 | 70 | 130 |
| | | EG094A-F: Chromium | 7440-47-3 | 50 µg/L | 90.4 | 70 | 130 |
| | | EG094A-F: Cobalt | 7440-48-4 | 50 µg/L | 105 | 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 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 518009) - continued** | | | | | | | |
| EB1617699-021 | DUP3 | EG094A-F: Copper | 7440-50-8 | 100 µg/L | 102 | 70 | 130 |
| | | EG094A-F: Lead | 7439-92-1 | 50 µg/L | 84.1 | 70 | 130 |
| | | EG094A-F: Nickel | 7440-02-0 | 50 µg/L | 102 | 70 | 130 |
| | | EG094A-F: Vanadium | 7440-62-2 | 50 µg/L | 82.1 | 70 | 130 |
| | | EG094A-F: Zinc | 7440-66-6 | 100 µg/L | 99.2 | 70 | 130 |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS (QCLot: 520730)** | | | | | | | |
| EB1617699-050 | 19 | EG094A-F: Arsenic | 7440-38-2 | 50 µg/L | 98.3 | 70 | 130 |
| | | EG094A-F: Barium | 7440-39-3 | 250 µg/L | 92.0 | 70 | 130 |
| | | EG094A-F: Cadmium | 7440-43-9 | 50 µg/L | 96.4 | 70 | 130 |
| | | EG094A-F: Chromium | 7440-47-3 | 50 µg/L | 95.7 | 70 | 130 |
| | | EG094A-F: Cobalt | 7440-48-4 | 50 µg/L | 98.5 | 70 | 130 |
| | | EG094A-F: Copper | 7440-50-8 | 100 µg/L | 99.0 | 70 | 130 |
| | | EG094A-F: Lead | 7439-92-1 | 50 µg/L | 91.7 | 70 | 130 |
| | | EG094A-F: Nickel | 7440-02-0 | 50 µg/L | 95.9 | 70 | 130 |
| | | EG094A-F: Vanadium | 7440-62-2 | 50 µg/L | 95.0 | 70 | 130 |
| | | EG094A-F: Zinc | 7440-66-6 | 100 µg/L | 103 | 70 | 130 |
| **EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 517991)** | | | | | | | |
| EB1617699-021 | DUP3 | EG094A-T: Arsenic | 7440-38-2 | 50 µg/L | 91.7 | 70 | 130 |
| | | EG094A-T: Barium | 7440-39-3 | 250 µg/L | 99.0 | 70 | 130 |
| | | EG094A-T: Cadmium | 7440-43-9 | 50 µg/L | 95.9 | 70 | 130 |
| | | EG094A-T: Chromium | 7440-47-3 | 50 µg/L | 86.8 | 70 | 130 |
| | | EG094A-T: Cobalt | 7440-48-4 | 50 µg/L | 98.2 | 70 | 130 |
| | | EG094A-T: Copper | 7440-50-8 | 100 µg/L | 96.0 | 70 | 130 |
| | | EG094A-T: Lead | 7439-92-1 | 50 µg/L | 94.5 | 70 | 130 |
| | | EG094A-T: Nickel | 7440-02-0 | 50 µg/L | 97.6 | 70 | 130 |
| | | EG094A-T: Vanadium | 7440-62-2 | 50 µg/L | 91.8 | 70 | 130 |
| | | EG094A-T: Zinc | 7440-66-6 | 100 µg/L | 92.1 | 70 | 130 |
| **EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 520737)** | | | | | | | |
| EB1617699-050 | 19 | EG094A-T: Arsenic | 7440-38-2 | 50 µg/L | 93.9 | 70 | 130 |
| | | EG094A-T: Barium | 7440-39-3 | 250 µg/L | 96.5 | 70 | 130 |
| | | EG094A-T: Cadmium | 7440-43-9 | 50 µg/L | 96.7 | 70 | 130 |
| | | EG094A-T: Chromium | 7440-47-3 | 50 µg/L | 98.7 | 70 | 130 |
| | | EG094A-T: Cobalt | 7440-48-4 | 50 µg/L | 102 | 70 | 130 |
| | | EG094A-T: Copper | 7440-50-8 | 100 µg/L | 104 | 70 | 130 |
| | | EG094A-T: Lead | 7439-92-1 | 50 µg/L | 95.2 | 70 | 130 |
| | | EG094A-T: Nickel | 7440-02-0 | 50 µg/L | 99.9 | 70 | 130 |
| | | EG094A-T: Vanadium | 7440-62-2 | 50 µg/L | 99.2 | 70 | 130 |
| | | EG094A-T: Zinc | 7440-66-6 | 100 µg/L | 95.1 | 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 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 515623)** | | | | | | | |
| EB1617699-062 | M13-M | EK055G: Ammonia as N | 7664-41-7 | 0.4 mg/L | 101 | 70 | 130 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 515625)** | | | | | | | |
| EB1617699-002 | M1-D | EK055G: Ammonia as N | 7664-41-7 | 0.4 mg/L | 124 | 70 | 130 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 515627)** | | | | | | | |
| EB1617699-022 | TRIP1 | EK055G: Ammonia as N | 7664-41-7 | 0.4 mg/L | 104 | 70 | 130 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 515629)** | | | | | | | |
| EB1617699-042 | M31-D | EK055G: Ammonia as N | 7664-41-7 | 0.4 mg/L | 108 | 70 | 130 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 515172)** | | | | | | | |
| EB1617699-002 | M1-D | EK057G: Nitrite as N | 14797-65-0 | 0.4 mg/L | 95.9 | 70 | 130 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 515173)** | | | | | | | |
| EB1617699-022 | TRIP1 | EK057G: Nitrite as N | 14797-65-0 | 0.4 mg/L | 99.2 | 70 | 130 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 515179)** | | | | | | | |
| EB1617699-035 | M10-D | EK057G: Nitrite as N | 14797-65-0 | 0.4 mg/L | 99.1 | 70 | 130 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 515181)** | | | | | | | |
| EB1617699-055 | 24-b | EK057G: Nitrite as N | 14797-65-0 | 0.4 mg/L | 92.4 | 70 | 130 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 515624)** | | | | | | | |
| EB1617699-062 | M13-M | EK059G: Nitrite + Nitrate as N | ---- | 0.4 mg/L | 89.4 | 70 | 130 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 515626)** | | | | | | | |
| EB1617699-002 | M1-D | EK059G: Nitrite + Nitrate as N | ---- | 0.4 mg/L | 108 | 70 | 130 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 515628)** | | | | | | | |
| EB1617699-022 | TRIP1 | EK059G: Nitrite + Nitrate as N | ---- | 0.4 mg/L | 102 | 70 | 130 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 515630)** | | | | | | | |
| EB1617699-042 | M31-D | EK059G: Nitrite + Nitrate as N | ---- | 0.4 mg/L | 97.8 | 70 | 130 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 516874)** | | | | | | | |
| EB1617699-002 | M1-D | EK061G: Total Kjeldahl Nitrogen as N | ---- | 5 mg/L | 106 | 70 | 130 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 516876)** | | | | | | | |
| EB1617699-022 | TRIP1 | EK061G: Total Kjeldahl Nitrogen as N | ---- | 5 mg/L | 99.4 | 70 | 130 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 516878)** | | | | | | | |
| EB1617699-040 | M31-S | EK061G: Total Kjeldahl Nitrogen as N | ---- | 5 mg/L | 104 | 70 | 130 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 516880)** | | | | | | | |
| EB1617699-060 | TRIP3 | EK061G: Total Kjeldahl Nitrogen as N | ---- | 5 mg/L | 101 | 70 | 130 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 516873)** | | | | | | | |
| EB1617699-002 | M1-D | EK067G: Total Phosphorus as P | ---- | 1 mg/L | 104 | 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 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 516875)** | | | | | | | |
| EB1617699-022 | TRIP1 | EK067G: Total Phosphorus as P | ---- | 1 mg/L | 116 | 70 | 130 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 516877)** | | | | | | | |
| EB1617699-040 | M31-S | EK067G: Total Phosphorus as P | ---- | 1 mg/L | 116 | 70 | 130 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 516879)** | | | | | | | |
| EB1617699-060 | TRIP3 | EK067G: Total Phosphorus as P | ---- | 1 mg/L | 118 | 70 | 130 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 515171)** | | | | | | | |
| EB1617699-002 | M1-D | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.4 mg/L | 104 | 70 | 130 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 515174)** | | | | | | | |
| EB1617699-022 | TRIP1 | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.4 mg/L | 101 | 70 | 130 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 515180)** | | | | | | | |
| EB1617699-035 | M10-D | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.4 mg/L | 114 | 70 | 130 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 515182)** | | | | | | | |
| EB1617699-055 | 24-b | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.4 mg/L | 108 | 70 | 130 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 515020)** | | | | | | | |
| EB1617699-002 | M1-D | EP080: C6 - C9 Fraction | ---- | 40 µg/L | 100 | 70 | 130 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 515025)** | | | | | | | |
| EB1617699-023 | TRIP2 | EP080: C6 - C9 Fraction | ---- | 40 µg/L | 104 | 70 | 130 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 515026)** | | | | | | | |
| EB1617699-043 | M37-S | EP080: C6 - C9 Fraction | ---- | 40 µg/L | 104 | 70 | 130 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 515027)** | | | | | | | |
| EB1617699-066 | M17-S | EP080: C6 - C9 Fraction | ---- | 40 µg/L | 103 | 70 | 130 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 515038)** | | | | | | | |
| EB1617699-051 | 21 | EP080: C6 - C9 Fraction | ---- | 40 µg/L | 112 | 70 | 130 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515020)** | | | | | | | |
| EB1617699-002 | M1-D | EP080: C6 - C10 Fraction | C6_C10 | 40 µg/L | 97.8 | 70 | 130 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515025)** | | | | | | | |
| EB1617699-023 | TRIP2 | EP080: C6 - C10 Fraction | C6_C10 | 40 µg/L | 107 | 70 | 130 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515026)** | | | | | | | |
| EB1617699-043 | M37-S | EP080: C6 - C10 Fraction | C6_C10 | 40 µg/L | 106 | 70 | 130 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515027)** | | | | | | | |
| EB1617699-066 | M17-S | EP080: C6 - C10 Fraction | C6_C10 | 40 µg/L | 105 | 70 | 130 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515038)** | | | | | | | |
| EB1617699-051 | 21 | EP080: C6 - C10 Fraction | C6_C10 | 40 µg/L | 116 | 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: 515020)** | | | | | | | |
| EB1617699-002 | M1-D | EP080: Benzene | 71-43-2 | 10 µg/L | 86.7 | 70 | 130 |
| | | EP080: Toluene | 108-88-3 | 10 µg/L | 91.2 | 70 | 130 |
| **EP080: BTEXN (QCLot: 515025)** | | | | | | | |
| EB1617699-023 | TRIP2 | EP080: Benzene | 71-43-2 | 10 µg/L | 83.0 | 70 | 130 |
| | | EP080: Toluene | 108-88-3 | 10 µg/L | 83.8 | 70 | 130 |
| **EP080: BTEXN (QCLot: 515026)** | | | | | | | |
| EB1617699-043 | M37-S | EP080: Benzene | 71-43-2 | 10 µg/L | 86.7 | 70 | 130 |
| | | EP080: Toluene | 108-88-3 | 10 µg/L | 96.0 | 70 | 130 |
| **EP080: BTEXN (QCLot: 515027)** | | | | | | | |
| EB1617699-066 | M17-S | EP080: Benzene | 71-43-2 | 10 µg/L | 90.0 | 70 | 130 |
| | | EP080: Toluene | 108-88-3 | 10 µg/L | 85.2 | 70 | 130 |
| **EP080: BTEXN (QCLot: 515038)** | | | | | | | |
| EB1617699-051 | 21 | EP080: Benzene | 71-43-2 | 10 µg/L | 88.8 | 70 | 130 |
| | | EP080: Toluene | 108-88-3 | 10 µg/L | 94.6 | 70 | 130 |

ALS Environmental

# QA/QC Compliance Assessment to assist with Quality Review

| | | | |
|---|---|---|---|
| **Work Order** | : **EB1617699** | Page | : 1 of 49 |
| **Amendment** | : **2** | | |
| Client | : **BMT WBM GROUP LTD** | Laboratory | : Environmental Division Brisbane |
| Contact | : MR JEREMY VISSER | Telephone | : +61 7 3552 8634 |
| Project | : B21414 Elk | Date Samples Received | : 11-Jul-2016 |
| Site | : ---- | Issue Date | : 26-Jul-2016 |
| Sampler | : CONOR JONES, DANIEL MORAN | No. of samples received | : 74 |
| Order number | : ---- | No. of samples analysed | : 73 |

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

### Outliers : Analysis Holding Time Compliance

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

### Outliers : Frequency of Quality Control Samples

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

## Outliers : Quality Control Samples

*Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes*

Matrix: **WATER**

| Compound Group Name | Laboratory Sample ID | Client Sample ID | Analyte | CAS Number | Data | Limits | Comment |
|---|---|---|---|---|---|---|---|
| **Laboratory Control Spike (LCS) Recoveries** | | | | | | | |
| EP075(SIM)B: Polynuclear Aromatic Hydrocarbons | QC-515050-002 | ---- | **Naphthalene** | 91-20-3 | 107 % | 47-101% | **Recovery greater than upper control limit** |
| EP075(SIM)B: Polynuclear Aromatic Hydrocarbons | QC-515282-002 | ---- | **Naphthalene** | 91-20-3 | 106 % | 47-101% | **Recovery greater than upper control limit** |
| EP075(SIM)B: Polynuclear Aromatic Hydrocarbons | QC-515276-002 | ---- | **Acenaphthylene** | 208-96-8 | 116 % | 46-109% | **Recovery greater than upper control limit** |
| EP075(SIM)B: Polynuclear Aromatic Hydrocarbons | QC-515050-002 | ---- | **Acenaphthene** | 83-32-9 | 106 % | 50-104% | **Recovery greater than upper control limit** |
| EP075(SIM)B: Polynuclear Aromatic Hydrocarbons | QC-515050-002 | ---- | **Fluorene** | 86-73-7 | 115 % | 50-114% | **Recovery greater than upper control limit** |
| EP075(SIM)B: Polynuclear Aromatic Hydrocarbons | QC-515282-002 | ---- | **Fluorene** | 86-73-7 | 116 % | 50-114% | **Recovery greater than upper control limit** |
| EP075(SIM)B: Polynuclear Aromatic Hydrocarbons | QC-515276-002 | ---- | **Chrysene** | 218-01-9 | 124 % | 45-119% | **Recovery greater than upper control limit** |

## 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*** |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | |
| **Clear Plastic Bottle - Natural**<br>23-b, 24-b | ---- | ---- | ---- | 14-Jul-2016 | 09-Jul-2016 | **5** |
| **Clear Plastic Bottle - Natural**<br>DUP4 | ---- | ---- | ---- | 13-Jul-2016 | 10-Jul-2016 | **3** |
| **Clear Plastic Bottle - Natural**<br>16, 17 | ---- | ---- | ---- | 14-Jul-2016 | 10-Jul-2016 | **4** |
| **Clear Plastic Bottle - Natural**<br>M25-S, M25-M, M25-D | ---- | ---- | ---- | 14-Jul-2016 | 11-Jul-2016 | **3** |
| **Clear Plastic Bottle - Natural**<br>DUP5 | ---- | ---- | ---- | 13-Jul-2016 | 12-Jul-2016 | **1** |
| **Clear Plastic Bottle - Natural**<br>M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | ---- | ---- | ---- | 14-Jul-2016 | 12-Jul-2016 | **2** |
| **Clear Plastic Bottle - Natural**<br>M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | ---- | ---- | ---- | 14-Jul-2016 | 13-Jul-2016 | **1** |

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 |
| **EA025: Total Suspended Solids dried at 104 ± 2°C - Analysis Holding Time Compliance** | | | | | | |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | ---- | ---- | ---- | 13-Jul-2016 | 02-Jul-2016 | **11** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | ---- | ---- | ---- | 13-Jul-2016 | 03-Jul-2016 | **10** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| 18, 19 | ---- | ---- | ---- | 14-Jul-2016 | 04-Jul-2016 | **10** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| DUP3, TRIP2 | ---- | ---- | ---- | 13-Jul-2016 | 05-Jul-2016 | **8** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| 21, 22 | ---- | ---- | ---- | 14-Jul-2016 | 05-Jul-2016 | **9** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| 20 | ---- | ---- | ---- | 14-Jul-2016 | 06-Jul-2016 | **8** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | |
| **Clear Plastic Bottle - Natural** | | | | | | |
| 23-b, 24-b | ---- | ---- | ---- | 12-Jul-2016 | 04-Jul-2016 | **8** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| DUP4, 16, 17 | ---- | ---- | ---- | 12-Jul-2016 | 05-Jul-2016 | **7** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M25-S, M25-M, M25-D | ---- | ---- | ---- | 12-Jul-2016 | 06-Jul-2016 | **6** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| DUP5, M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | ---- | ---- | ---- | 12-Jul-2016 | 07-Jul-2016 | **5** |

Matrix: **WATER**

| Method / Container / Client Sample ID(s) | Extraction / Preparation: Date extracted | Extraction / Preparation: Due for extraction | Extraction / Preparation: Days overdue | Analysis: Date analysed | Analysis: Due for analysis | Analysis: Days overdue |
|---|---|---|---|---|---|---|
| **EK057G: Nitrite as N by Discrete Analyser - Analysis Holding Time Compliance** | | | | | | |
| **Clear Plastic Bottle - Natural**<br>M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | ---- | ---- | ---- | 12-Jul-2016 | 08-Jul-2016 | **4** |
| **Clear Plastic Bottle - Natural**<br>28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D | ---- | ---- | ---- | 12-Jul-2016 | 09-Jul-2016 | **3** |
| **Clear Plastic Bottle - Natural**<br>M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | ---- | ---- | ---- | 12-Jul-2016 | 27-Jun-2016 | **15** |
| **Clear Plastic Bottle - Natural**<br>M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | ---- | ---- | ---- | 12-Jul-2016 | 28-Jun-2016 | **14** |
| **Clear Plastic Bottle - Natural**<br>18, 19 | ---- | ---- | ---- | 12-Jul-2016 | 29-Jun-2016 | **13** |
| **Clear Plastic Bottle - Natural**<br>DUP3, TRIP2, 21, 22 | ---- | ---- | ---- | 12-Jul-2016 | 30-Jun-2016 | **12** |
| **Clear Plastic Bottle - Natural**<br>20 | ---- | ---- | ---- | 12-Jul-2016 | 01-Jul-2016 | **11** |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | |
| **Clear Plastic Bottle - Natural**<br>23-b, 24-b | ---- | ---- | ---- | 12-Jul-2016 | 04-Jul-2016 | **8** |

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 |
| **EK071G: Reactive Phosphorus as P by discrete analyser - Analysis Holding Time Compliance** | | | | | | |
| **Clear Plastic Bottle - Natural** | | | | | | |
| DUP4, 16, 17 | ---- | ---- | ---- | 12-Jul-2016 | 05-Jul-2016 | **7** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M25-S, M25-M, M25-D | ---- | ---- | ---- | 12-Jul-2016 | 06-Jul-2016 | **6** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| DUP5, M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | ---- | ---- | ---- | 12-Jul-2016 | 07-Jul-2016 | **5** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | ---- | ---- | ---- | 12-Jul-2016 | 08-Jul-2016 | **4** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| 28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D | ---- | ---- | ---- | 12-Jul-2016 | 09-Jul-2016 | **3** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | ---- | ---- | ---- | 12-Jul-2016 | 27-Jun-2016 | **15** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | ---- | ---- | ---- | 12-Jul-2016 | 28-Jun-2016 | **14** |

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 |
| **EK071G: Reactive Phosphorus as P by discrete analyser - Analysis Holding Time Compliance** | | | | | | |
| **Clear Plastic Bottle - Natural** | | | | | | |
| 18, 19 | ---- | ---- | ---- | 12-Jul-2016 | 29-Jun-2016 | **13** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| DUP3, TRIP2, 21, 22 | ---- | ---- | ---- | 12-Jul-2016 | 30-Jun-2016 | **12** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| 20 | ---- | ---- | ---- | 12-Jul-2016 | 01-Jul-2016 | **11** |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| DUP4, 16, 17 | 12-Jul-2016 | 10-Jul-2016 | **2** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M25-S, M25-M, M25-D | 12-Jul-2016 | 11-Jul-2016 | **1** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | 12-Jul-2016 | 02-Jul-2016 | **10** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M8-S, M8-D | 12-Jul-2016 | 03-Jul-2016 | **9** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| 18, 19 | 12-Jul-2016 | 04-Jul-2016 | **8** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| TRIP2 | 12-Jul-2016 | 05-Jul-2016 | **7** | ---- | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| DUP4, 16, 17 | 12-Jul-2016 | 10-Jul-2016 | **2** | ---- | ---- | ---- |

Matrix: **WATER**

| Method / Container / Client Sample ID(s) | | Extraction / Preparation: Date extracted | Extraction / Preparation: Due for extraction | Extraction / Preparation: Days overdue | Analysis: Date analysed | Analysis: Due for analysis | Analysis: Days overdue |
|---|---|---|---|---|---|---|---|
| **EP080/071: Total Petroleum Hydrocarbons - Analysis Holding Time Compliance** | | | | | | | |
| **Amber Glass Bottle - Unpreserved** | | | | | | | |
| M25-S, | M25-M, | 12-Jul-2016 | 11-Jul-2016 | **1** | ---- | ---- | ---- |
| M25-D | | | | | | | |
| **Amber Glass Bottle - Unpreserved** | | | | | | | |
| M2-D, | M3-S, | 12-Jul-2016 | 02-Jul-2016 | **10** | ---- | ---- | ---- |
| M3-M, | M3-D, | | | | | | |
| M4-S, | M4-M, | | | | | | |
| M4-D, | M11-S, | | | | | | |
| M11-M, | M11-D, | | | | | | |
| M12-S, | M12-M, | | | | | | |
| M12-D, | M6-S, | | | | | | |
| M6-D, | M9-S, | | | | | | |
| M9-M, | M9-D, | | | | | | |
| M10-S, | M10-D | | | | | | |
| **Amber Glass Bottle - Unpreserved** | | | | | | | |
| M1-S, | M1-D, | 12-Jul-2016 | 03-Jul-2016 | **9** | ---- | ---- | ---- |
| M5-S, | M5-D, | | | | | | |
| DUP1, | DUP2, | | | | | | |
| TRIP1, | M7-S, | | | | | | |
| M8-S, | M8-D | | | | | | |
| **Amber Glass Bottle - Unpreserved** | | | | | | | |
| 18, | 19 | 12-Jul-2016 | 04-Jul-2016 | **8** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | | |
| TRIP2 | | 12-Jul-2016 | 05-Jul-2016 | **7** | ---- | ---- | ---- |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | | |
| TRIP BLANK 1 | | 13-Jul-2016 | 02-Feb-2016 | **162** | 13-Jul-2016 | 02-Feb-2016 | **162** |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | | |
| M2-S, | M2-D, | 13-Jul-2016 | 09-Jul-2016 | **4** | 13-Jul-2016 | 09-Jul-2016 | **4** |
| M3-S, | M3-M, | | | | | | |
| M3-D, | M4-S, | | | | | | |
| M4-M, | M4-D, | | | | | | |
| M11-S, | M11-M, | | | | | | |
| M11-D, | M12-S, | | | | | | |
| M12-M, | M12-D, | | | | | | |
| M6-S, | M6-D, | | | | | | |
| M9-S, | M9-M, | | | | | | |
| M9-D, | M10-S, | | | | | | |
| M10-D | | | | | | | |

Matrix: **WATER**

| Method / Container / Client Sample ID(s) | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|
| | Date extracted | Due for extraction | Days overdue | Date analysed | Due for analysis | Days overdue |
| **EP080/071: Total Petroleum Hydrocarbons - Analysis Holding Time Compliance** | | | | | | |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | 13-Jul-2016 | 10-Jul-2016 | **3** | 13-Jul-2016 | 10-Jul-2016 | **3** |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| 18 | 13-Jul-2016 | 11-Jul-2016 | **2** | 13-Jul-2016 | 11-Jul-2016 | **2** |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| TRIP2, 21 | 13-Jul-2016 | 12-Jul-2016 | **1** | 13-Jul-2016 | 12-Jul-2016 | **1** |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| DUP4, 16, 17 | 12-Jul-2016 | 10-Jul-2016 | **2** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M25-S, M25-M, M25-D | 12-Jul-2016 | 11-Jul-2016 | **1** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | 12-Jul-2016 | 02-Jul-2016 | **10** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M8-S, M8-D | 12-Jul-2016 | 03-Jul-2016 | **9** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| 18, 19 | 12-Jul-2016 | 04-Jul-2016 | **8** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| TRIP2 | 12-Jul-2016 | 05-Jul-2016 | **7** | ---- | ---- | ---- |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| TRIP BLANK 1 | 13-Jul-2016 | 02-Feb-2016 | **162** | 13-Jul-2016 | 02-Feb-2016 | **162** |

Matrix: **WATER**

| Method / Container / Client Sample ID(s) | Extraction / Preparation: Date extracted | Extraction / Preparation: Due for extraction | Extraction / Preparation: Days overdue | Analysis: Date analysed | Analysis: Due for analysis | Analysis: Days overdue |
|---|---|---|---|---|---|---|
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Analysis Holding Time** | | | | | | |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | 13-Jul-2016 | 09-Jul-2016 | **4** | 13-Jul-2016 | 09-Jul-2016 | **4** |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | 13-Jul-2016 | 10-Jul-2016 | **3** | 13-Jul-2016 | 10-Jul-2016 | **3** |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| 18 | 13-Jul-2016 | 11-Jul-2016 | **2** | 13-Jul-2016 | 11-Jul-2016 | **2** |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| TRIP2, 21 | 13-Jul-2016 | 12-Jul-2016 | **1** | 13-Jul-2016 | 12-Jul-2016 | **1** |
| **EP080: BTEXN** | | | | | | |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| TRIP BLANK 1 | 13-Jul-2016 | 02-Feb-2016 | **162** | 13-Jul-2016 | 02-Feb-2016 | **162** |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | 13-Jul-2016 | 09-Jul-2016 | **4** | 13-Jul-2016 | 09-Jul-2016 | **4** |

Matrix: **WATER**

| Method / Container / Client Sample ID(s) | Extraction / Preparation: Date extracted | Extraction / Preparation: Due for extraction | Extraction / Preparation: Days overdue | Analysis: Date analysed | Analysis: Due for analysis | Analysis: Days overdue |
|---|---|---|---|---|---|---|
| **EP080: BTEXN - Analysis Holding Time Compliance** | | | | | | |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | 13-Jul-2016 | 10-Jul-2016 | **3** | 13-Jul-2016 | 10-Jul-2016 | **3** |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| 18 | 13-Jul-2016 | 11-Jul-2016 | **2** | 13-Jul-2016 | 11-Jul-2016 | **2** |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| TRIP2, 21 | 13-Jul-2016 | 12-Jul-2016 | **1** | 13-Jul-2016 | 12-Jul-2016 | **1** |

## *Outliers : Frequency of Quality Control Samples*

Matrix: **WATER**

| Quality Control Sample Type / Method | Count: QC | Count: Regular | Rate (%): Actual | Rate (%): Expected | Quality Control Specification |
|---|---|---|---|---|---|
| Laboratory Duplicates (DUP) | | | | | |
| Dissolved Metals in Saline Water -Suite A by ORC-ICPMS | 6 | 63 | 9.52 | 10.00 | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Saline Water -Suite B by ORC-ICPMS | 5 | 63 | 7.94 | 10.00 | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (GC/MS - SIM) | 0 | 64 | 0.00 | 10.00 | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | 0 | 63 | 0.00 | 10.00 | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fractions Only | 0 | 1 | 0.00 | 10.00 | NEPM 2013 B3 & ALS QC Standard |
| Matrix Spikes (MS) | | | | | |
| Dissolved Metals in Saline Water -Suite A by ORC-ICPMS | 3 | 63 | 4.76 | 5.00 | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (GC/MS - SIM) | 0 | 64 | 0.00 | 5.00 | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | 0 | 63 | 0.00 | 5.00 | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fractions Only | 0 | 1 | 0.00 | 5.00 | NEPM 2013 B3 & ALS QC Standard |

# *Analysis Holding Time Compliance*

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

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

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

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

Matrix: **WATER**

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

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

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 |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | |
| **Clear Plastic Bottle - Natural (EA025)** | | | | | | | |
| 23-b, 24-b | **02-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 09-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EA025)** | | | | | | | |
| DUP4 | **03-Jul-2016** | **----** | ---- | ---- | **13-Jul-2016** | 10-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EA025)** | | | | | | | |
| 16, 17 | **03-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 10-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EA025)** | | | | | | | |
| M25-S, M25-M, M25-D | **04-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 11-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EA025)** | | | | | | | |
| DUP5 | **05-Jul-2016** | **----** | ---- | ---- | **13-Jul-2016** | 12-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EA025)** | | | | | | | |
| M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 12-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EA025)** | | | | | | | |
| M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | **06-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 13-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EA025)** | | | | | | | |
| 28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D | **07-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 14-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Natural (EA025)** | | | | | | | |
| M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **----** | ---- | ---- | **13-Jul-2016** | 02-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EA025)** | | | | | | | |

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 |
| **EA025: Total Suspended Solids dried at 104 ± 2°C - Continued** | | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | **26-Jun-2016** | **----** | ---- | ---- | **13-Jul-2016** | 03-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EA025)** 18, 19 | **27-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 04-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EA025)** DUP3, TRIP2 | **28-Jun-2016** | **----** | ---- | ---- | **13-Jul-2016** | 05-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EA025)** 21, 22 | **28-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 05-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EA025)** 20 | **29-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 06-Jul-2016 | × |

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 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| 23-b, 24-b | **02-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 30-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| DUP4, 16, 17 | **03-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 31-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| M25-S, M25-M, M25-D | **04-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 01-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| DUP5, M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 02-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | **06-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 03-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| 28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D, Rinsate | **07-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 04-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 23-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | **26-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 24-Jul-2016 | ✓ |

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 |
| **EG035F: Dissolved Mercury by FIMS - Continued** | | | | | | | |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 25-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| DUP3, TRIP2, 21, 22 | **28-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 26-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| 20 | **29-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 27-Jul-2016 | ✓ |

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 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)** | | | | | | | |
| 23-b, 24-b | **02-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 30-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)** | | | | | | | |
| DUP4, 16, 17 | **03-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 31-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)** | | | | | | | |
| M25-S, M25-M, M25-D | **04-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 01-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)** | | | | | | | |
| DUP5, M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 02-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)** | | | | | | | |
| M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | **06-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 03-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)** | | | | | | | |
| 28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D, Rinsate | **07-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 04-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)** | | | | | | | |
| M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 23-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)** | | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | **26-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 24-Jul-2016 | ✓ |

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 |
| **EG035T: Total Recoverable Mercury by FIMS - Continued** | | | | | | | |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 25-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)** | | | | | | | |
| DUP3, TRIP2, 21, 22 | **28-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 26-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)** | | | | | | | |
| 20 | **29-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 27-Jul-2016 | ✓ |

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 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG093A-F)** | | | | | | | |
| 23-b | **02-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 29-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG093A-F)** | | | | | | | |
| M25-S, M25-M, M25-D | **04-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 31-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG093A-F)** | | | | | | | |
| DUP5 | **05-Jul-2016** | **----** | ---- | ---- | **13-Jul-2016** | 01-Jan-2017 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG093A-F)** | | | | | | | |
| M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 01-Jan-2017 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG093A-F)** | | | | | | | |
| M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | **06-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 02-Jan-2017 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG093A-F)** | | | | | | | |
| 28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D | **07-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 03-Jan-2017 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG093A-F)** | | | | | | | |
| M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **----** | ---- | ---- | **13-Jul-2016** | 22-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG093A-F)** | | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | **26-Jun-2016** | **----** | ---- | ---- | **13-Jul-2016** | 23-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG093A-F)** | | | | | | | |
| TRIP2 | **28-Jun-2016** | **----** | ---- | ---- | **13-Jul-2016** | 25-Dec-2016 | ✓ |

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 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG093A-F)** | | | | | | | |
| 21 | **28-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 25-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG093A-F)** | | | | | | | |
| 20 | **29-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 26-Dec-2016 | ✓ |

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 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG093A-T)** | | | | | | | |
| 23-b | **02-Jul-2016** | **14-Jul-2016** | 29-Dec-2016 | ✓ | **14-Jul-2016** | 29-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG093A-T)** | | | | | | | |
| M25-S, M25-M, M25-D | **04-Jul-2016** | **14-Jul-2016** | 31-Dec-2016 | ✓ | **14-Jul-2016** | 31-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG093A-T)** | | | | | | | |
| DUP5 | **05-Jul-2016** | **13-Jul-2016** | 01-Jan-2017 | ✓ | **13-Jul-2016** | 01-Jan-2017 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG093A-T)** | | | | | | | |
| M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **14-Jul-2016** | 01-Jan-2017 | ✓ | **14-Jul-2016** | 01-Jan-2017 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG093A-T)** | | | | | | | |
| M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | **06-Jul-2016** | **14-Jul-2016** | 02-Jan-2017 | ✓ | **14-Jul-2016** | 02-Jan-2017 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG093A-T)** | | | | | | | |
| 28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D | **07-Jul-2016** | **14-Jul-2016** | 03-Jan-2017 | ✓ | **14-Jul-2016** | 03-Jan-2017 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG093A-T)** | | | | | | | |
| M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **13-Jul-2016** | 22-Dec-2016 | ✓ | **13-Jul-2016** | 22-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG093A-T)** | | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | **26-Jun-2016** | **13-Jul-2016** | 23-Dec-2016 | ✓ | **13-Jul-2016** | 23-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG093A-T)** | | | | | | | |
| TRIP2 | **28-Jun-2016** | **13-Jul-2016** | 25-Dec-2016 | ✓ | **13-Jul-2016** | 25-Dec-2016 | ✓ |

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 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG093A-T)** 21 | **28-Jun-2016** | **14-Jul-2016** | 25-Dec-2016 | ✓ | **14-Jul-2016** | 25-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG093A-T)** 20 | **29-Jun-2016** | **14-Jul-2016** | 26-Dec-2016 | ✓ | **14-Jul-2016** | 26-Dec-2016 | ✓ |
| **EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS** | | | | | | | |
| **Clear HDPE (U-T ORC) - Filtered; Lab-acidified (EG094B-F)** 18 | **27-Jun-2016** | **----** | ---- | ---- | **18-Jul-2016** | 24-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG094B-F)** 24-b | **02-Jul-2016** | **----** | ---- | ---- | **18-Jul-2016** | 29-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG094B-F)** DUP4 | **03-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 30-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG094B-F)** 16, 17 | **03-Jul-2016** | **----** | ---- | ---- | **18-Jul-2016** | 30-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG094B-F)** Rinsate | **07-Jul-2016** | **----** | ---- | ---- | **18-Jul-2016** | 03-Jan-2017 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG094B-F)** 19 | **27-Jun-2016** | **----** | ---- | ---- | **18-Jul-2016** | 24-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG094B-F)** DUP3 | **28-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 25-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG094B-F)** 22 | **28-Jun-2016** | **----** | ---- | ---- | **18-Jul-2016** | 25-Dec-2016 | ✓ |
| **EG094T: Total metals in Fresh water by ORC-ICPMS** | | | | | | | |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG094B-T)** 24-b | **02-Jul-2016** | **18-Jul-2016** | 29-Dec-2016 | ✓ | **18-Jul-2016** | 29-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG094B-T)** DUP4 | **03-Jul-2016** | **14-Jul-2016** | 30-Dec-2016 | ✓ | **14-Jul-2016** | 30-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG094B-T)** 16, 17 | **03-Jul-2016** | **18-Jul-2016** | 30-Dec-2016 | ✓ | **18-Jul-2016** | 30-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG094B-T)** Rinsate | **07-Jul-2016** | **18-Jul-2016** | 03-Jan-2017 | ✓ | **18-Jul-2016** | 03-Jan-2017 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG094B-T)** 18, 19 | **27-Jun-2016** | **18-Jul-2016** | 24-Dec-2016 | ✓ | **18-Jul-2016** | 24-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG094B-T)** DUP3 | **28-Jun-2016** | **14-Jul-2016** | 25-Dec-2016 | ✓ | **14-Jul-2016** | 25-Dec-2016 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG094B-T)** 22 | **28-Jun-2016** | **18-Jul-2016** | 25-Dec-2016 | ✓ | **18-Jul-2016** | 25-Dec-2016 | ✓ |

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 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |
| 23-b, 24-b | **02-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 30-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |
| DUP4, 16, 17 | **03-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 31-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |
| M25-S, M25-M, M25-D | **04-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 01-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |
| DUP5, M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 02-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |
| M13-S, M13-M, M13-D | **06-Jul-2016** | **----** | ---- | ---- | **13-Jul-2016** | 03-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |
| M43-S, M43-M, M43-D | **06-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 03-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |
| M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D, Rinsate | **07-Jul-2016** | **----** | ---- | ---- | **13-Jul-2016** | 04-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |
| 28, 29, TRIP3 | **07-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 04-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |
| M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 23-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |

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 |
| **EK055G: Ammonia as N by Discrete Analyser - Continued** | | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | **26-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 24-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 25-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |
| DUP3, TRIP2, 21, 22 | **28-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 26-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |
| 20 | **29-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 27-Jul-2016 | ✓ |

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 |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | |
| **Clear Plastic Bottle - Natural (EK057G)** | | | | | | | |
| 23-b, 24-b | **02-Jul-2016** | **----** | ---- | ---- | **12-Jul-2016** | 04-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EK057G)** | | | | | | | |
| DUP4, 16, 17 | **03-Jul-2016** | **----** | ---- | ---- | **12-Jul-2016** | 05-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EK057G)** | | | | | | | |
| M25-S, M25-M, M25-D | **04-Jul-2016** | **----** | ---- | ---- | **12-Jul-2016** | 06-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EK057G)** | | | | | | | |
| DUP5, M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **----** | ---- | ---- | **12-Jul-2016** | 07-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EK057G)** | | | | | | | |
| M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | **06-Jul-2016** | **----** | ---- | ---- | **12-Jul-2016** | 08-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EK057G)** | | | | | | | |
| 28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D | **07-Jul-2016** | **----** | ---- | ---- | **12-Jul-2016** | 09-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EK057G)** | | | | | | | |
| M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **----** | ---- | ---- | **12-Jul-2016** | 27-Jun-2016 | × |
| **Clear Plastic Bottle - Natural (EK057G)** | | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | **26-Jun-2016** | **----** | ---- | ---- | **12-Jul-2016** | 28-Jun-2016 | × |

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 |
| **EK057G: Nitrite as N by Discrete Analyser - Continued** | | | | | | | |
| **Clear Plastic Bottle - Natural (EK057G)** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **----** | ---- | ---- | **12-Jul-2016** | 29-Jun-2016 | ✘ |
| **Clear Plastic Bottle - Natural (EK057G)** | | | | | | | |
| DUP3, TRIP2, 21, 22 | **28-Jun-2016** | **----** | ---- | ---- | **12-Jul-2016** | 30-Jun-2016 | ✘ |
| **Clear Plastic Bottle - Natural (EK057G)** | | | | | | | |
| 20 | **29-Jun-2016** | **----** | ---- | ---- | **12-Jul-2016** | 01-Jul-2016 | ✘ |

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 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)**<br>23-b, 24-b | **02-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 30-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)**<br>DUP4, 16, 17 | **03-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 31-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)**<br>M25-S, M25-M, M25-D | **04-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 01-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)**<br>DUP5, M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 02-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)**<br>M13-S, M13-M, M13-D | **06-Jul-2016** | **----** | ---- | ---- | **13-Jul-2016** | 03-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)**<br>M43-S, M43-M, M43-D | **06-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 03-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)**<br>M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D, Rinsate | **07-Jul-2016** | **----** | ---- | ---- | **13-Jul-2016** | 04-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)**<br>28, 29, TRIP3 | **07-Jul-2016** | **----** | ---- | ---- | **14-Jul-2016** | 04-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)**<br>M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 23-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)** | | | | | | | |

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 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser - Continued** | | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | **26-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 24-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 25-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)** | | | | | | | |
| DUP3, TRIP2, 21, 22 | **28-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 26-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)** | | | | | | | |
| 20 | **29-Jun-2016** | **----** | ---- | ---- | **14-Jul-2016** | 27-Jul-2016 | ✓ |

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 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| 23-b, 24-b | **02-Jul-2016** | **14-Jul-2016** | 30-Jul-2016 | ✓ | **14-Jul-2016** | 30-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| DUP4, 16, 17 | **03-Jul-2016** | **14-Jul-2016** | 31-Jul-2016 | ✓ | **14-Jul-2016** | 31-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| M25-S, M25-M, M25-D | **04-Jul-2016** | **14-Jul-2016** | 01-Aug-2016 | ✓ | **14-Jul-2016** | 01-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| DUP5, M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **14-Jul-2016** | 02-Aug-2016 | ✓ | **14-Jul-2016** | 02-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | **06-Jul-2016** | **14-Jul-2016** | 03-Aug-2016 | ✓ | **14-Jul-2016** | 03-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| 28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D, Rinsate | **07-Jul-2016** | **14-Jul-2016** | 04-Aug-2016 | ✓ | **14-Jul-2016** | 04-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **14-Jul-2016** | 23-Jul-2016 | ✓ | **14-Jul-2016** | 23-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | **26-Jun-2016** | **14-Jul-2016** | 24-Jul-2016 | ✓ | **14-Jul-2016** | 24-Jul-2016 | ✓ |

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 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser - Continued** | | | | | | | |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **14-Jul-2016** | 25-Jul-2016 | ✓ | **14-Jul-2016** | 25-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| DUP3, TRIP2, 21, 22 | **28-Jun-2016** | **14-Jul-2016** | 26-Jul-2016 | ✓ | **14-Jul-2016** | 26-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| 20 | **29-Jun-2016** | **14-Jul-2016** | 27-Jul-2016 | ✓ | **14-Jul-2016** | 27-Jul-2016 | ✓ |

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 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| 23-b, 24-b | **02-Jul-2016** | **14-Jul-2016** | 30-Jul-2016 | ✓ | **14-Jul-2016** | 30-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| DUP4, 16, 17 | **03-Jul-2016** | **14-Jul-2016** | 31-Jul-2016 | ✓ | **14-Jul-2016** | 31-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| M25-S, M25-M, M25-D | **04-Jul-2016** | **14-Jul-2016** | 01-Aug-2016 | ✓ | **14-Jul-2016** | 01-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| DUP5, M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **14-Jul-2016** | 02-Aug-2016 | ✓ | **14-Jul-2016** | 02-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | **06-Jul-2016** | **14-Jul-2016** | 03-Aug-2016 | ✓ | **14-Jul-2016** | 03-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| 28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D, Rinsate | **07-Jul-2016** | **14-Jul-2016** | 04-Aug-2016 | ✓ | **14-Jul-2016** | 04-Aug-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **14-Jul-2016** | 23-Jul-2016 | ✓ | **14-Jul-2016** | 23-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | **26-Jun-2016** | **14-Jul-2016** | 24-Jul-2016 | ✓ | **14-Jul-2016** | 24-Jul-2016 | ✓ |

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 |
| **EK067G: Total Phosphorus as P by Discrete Analyser - Continued** | | | | | | | |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **14-Jul-2016** | 25-Jul-2016 | ✓ | **14-Jul-2016** | 25-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| DUP3, TRIP2, 21, 22 | **28-Jun-2016** | **14-Jul-2016** | 26-Jul-2016 | ✓ | **14-Jul-2016** | 26-Jul-2016 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| 20 | **29-Jun-2016** | **14-Jul-2016** | 27-Jul-2016 | ✓ | **14-Jul-2016** | 27-Jul-2016 | ✓ |

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 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | |
| **Clear Plastic Bottle - Natural (EK071G)**<br>23-b, 24-b | **02-Jul-2016** | **----** | ---- | ---- | **12-Jul-2016** | 04-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EK071G)**<br>DUP4, 16, 17 | **03-Jul-2016** | **----** | ---- | ---- | **12-Jul-2016** | 05-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EK071G)**<br>M25-S, M25-M, M25-D | **04-Jul-2016** | **----** | ---- | ---- | **12-Jul-2016** | 06-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EK071G)**<br>DUP5, M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **----** | ---- | ---- | **12-Jul-2016** | 07-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EK071G)**<br>M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | **06-Jul-2016** | **----** | ---- | ---- | **12-Jul-2016** | 08-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EK071G)**<br>28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D | **07-Jul-2016** | **----** | ---- | ---- | **12-Jul-2016** | 09-Jul-2016 | × |
| **Clear Plastic Bottle - Natural (EK071G)**<br>M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **----** | ---- | ---- | **12-Jul-2016** | 27-Jun-2016 | × |
| **Clear Plastic Bottle - Natural (EK071G)**<br>M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | **26-Jun-2016** | **----** | ---- | ---- | **12-Jul-2016** | 28-Jun-2016 | × |

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 |
| **EK071G: Reactive Phosphorus as P by discrete analyser - Continued** | | | | | | | |
| **Clear Plastic Bottle - Natural (EK071G)** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **----** | ---- | ---- | **12-Jul-2016** | 29-Jun-2016 | ✘ |
| **Clear Plastic Bottle - Natural (EK071G)** | | | | | | | |
| DUP3, TRIP2, 21, 22 | **28-Jun-2016** | **----** | ---- | ---- | **12-Jul-2016** | 30-Jun-2016 | ✘ |
| **Clear Plastic Bottle - Natural (EK071G)** | | | | | | | |
| 20 | **29-Jun-2016** | **----** | ---- | ---- | **12-Jul-2016** | 01-Jul-2016 | ✘ |

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 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | |
| **Glass Fibre Filter Paper (Chlorophyll) (EP008)**<br>23-b, 24-b | **02-Jul-2016** | **----** | ---- | ---- | **13-Jul-2016** | 23-Jul-2016 | ✓ |
| **Glass Fibre Filter Paper (Chlorophyll) (EP008)**<br>DUP4, 16, 17 | **03-Jul-2016** | **----** | ---- | ---- | **13-Jul-2016** | 24-Jul-2016 | ✓ |
| **Glass Fibre Filter Paper (Chlorophyll) (EP008)**<br>M25-S, M25-M, M25-D | **04-Jul-2016** | **----** | ---- | ---- | **13-Jul-2016** | 25-Jul-2016 | ✓ |
| **Glass Fibre Filter Paper (Chlorophyll) (EP008)**<br>DUP5, M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **----** | ---- | ---- | **13-Jul-2016** | 26-Jul-2016 | ✓ |
| **Glass Fibre Filter Paper (Chlorophyll) (EP008)**<br>M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | **06-Jul-2016** | **----** | ---- | ---- | **13-Jul-2016** | 27-Jul-2016 | ✓ |
| **Glass Fibre Filter Paper (Chlorophyll) (EP008)**<br>28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D | **07-Jul-2016** | **----** | ---- | ---- | **13-Jul-2016** | 28-Jul-2016 | ✓ |
| **Glass Fibre Filter Paper (Chlorophyll) (EP008)**<br>M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **----** | ---- | ---- | **13-Jul-2016** | 16-Jul-2016 | ✓ |
| **Glass Fibre Filter Paper (Chlorophyll) (EP008)**<br>M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | **26-Jun-2016** | **----** | ---- | ---- | **13-Jul-2016** | 17-Jul-2016 | ✓ |

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 |
| **EP008: Chlorophyll a & Pheophytin a - Continued** | | | | | | | |
| **Glass Fibre Filter Paper (Chlorophyll) (EP008)** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **----** | ---- | ---- | **13-Jul-2016** | 18-Jul-2016 | ✓ |
| **Glass Fibre Filter Paper (Chlorophyll) (EP008)** | | | | | | | |
| DUP3, TRIP2, 21, 22 | **28-Jun-2016** | **----** | ---- | ---- | **13-Jul-2016** | 19-Jul-2016 | ✓ |
| **Glass Fibre Filter Paper (Chlorophyll) (EP008)** | | | | | | | |
| 20 | **29-Jun-2016** | **----** | ---- | ---- | **13-Jul-2016** | 20-Jul-2016 | ✓ |

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 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | |
| **Amber Glass Bottle - Unpreserved (EP075(SIM))** | | | | | | | |
| DUP4, 16, 17 | **03-Jul-2016** | **12-Jul-2016** | 10-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP075(SIM))** | | | | | | | |
| M25-S, M25-M, M25-D | **04-Jul-2016** | **12-Jul-2016** | 11-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP075(SIM))** | | | | | | | |
| DUP5, M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **12-Jul-2016** | 12-Jul-2016 | ✓ | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP075(SIM))** | | | | | | | |
| M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | **06-Jul-2016** | **12-Jul-2016** | 13-Jul-2016 | ✓ | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP075(SIM))** | | | | | | | |
| 28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D, Rinsate | **07-Jul-2016** | **12-Jul-2016** | 14-Jul-2016 | ✓ | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP075(SIM))** | | | | | | | |
| M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **12-Jul-2016** | 02-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP075(SIM))** | | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M8-S, M8-D | **26-Jun-2016** | **12-Jul-2016** | 03-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP075(SIM))** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **12-Jul-2016** | 04-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP075(SIM))** | | | | | | | |
| TRIP2 | **28-Jun-2016** | **12-Jul-2016** | 05-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |

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)** | | | | | | | |
| DUP4, 16, 17 | **03-Jul-2016** | **12-Jul-2016** | 10-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| M25-S, M25-M, M25-D | **04-Jul-2016** | **12-Jul-2016** | 11-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| DUP5, M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **12-Jul-2016** | 12-Jul-2016 | ✓ | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | **06-Jul-2016** | **12-Jul-2016** | 13-Jul-2016 | ✓ | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| 28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D, Rinsate | **07-Jul-2016** | **12-Jul-2016** | 14-Jul-2016 | ✓ | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **12-Jul-2016** | 02-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M8-S, M8-D | **26-Jun-2016** | **12-Jul-2016** | 03-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071-SV)** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **12-Jul-2016** | 04-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| TRIP2 | **28-Jun-2016** | **12-Jul-2016** | 05-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |

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 - Continued** | | | | | | | |
| **Amber VOC Vial - Sulfuric Acid (EP080)**<br>24-b | **02-Jul-2016** | **13-Jul-2016** | 16-Jul-2016 | ✓ | **13-Jul-2016** | 16-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)**<br>DUP4, 16, 17 | **03-Jul-2016** | **13-Jul-2016** | 17-Jul-2016 | ✓ | **13-Jul-2016** | 17-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)**<br>M25-S, M25-M, M25-D | **04-Jul-2016** | **13-Jul-2016** | 18-Jul-2016 | ✓ | **13-Jul-2016** | 18-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)**<br>DUP5, M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **13-Jul-2016** | 19-Jul-2016 | ✓ | **13-Jul-2016** | 19-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)**<br>M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | **06-Jul-2016** | **13-Jul-2016** | 20-Jul-2016 | ✓ | **13-Jul-2016** | 20-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)**<br>28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D, Rinsate | **07-Jul-2016** | **13-Jul-2016** | 21-Jul-2016 | ✓ | **13-Jul-2016** | 21-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)**<br>TRIP BLANK 1 | **19-Jan-2016** | **13-Jul-2016** | 02-Feb-2016 | × | **13-Jul-2016** | 02-Feb-2016 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)**<br>M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **13-Jul-2016** | 09-Jul-2016 | × | **13-Jul-2016** | 09-Jul-2016 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |

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 - Continued** | | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | **26-Jun-2016** | **13-Jul-2016** | 10-Jul-2016 | × | **13-Jul-2016** | 10-Jul-2016 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** 18 | **27-Jun-2016** | **13-Jul-2016** | 11-Jul-2016 | × | **13-Jul-2016** | 11-Jul-2016 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** TRIP2, 21 | **28-Jun-2016** | **13-Jul-2016** | 12-Jul-2016 | × | **13-Jul-2016** | 12-Jul-2016 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** 20 | **29-Jun-2016** | **13-Jul-2016** | 13-Jul-2016 | ✓ | **13-Jul-2016** | 13-Jul-2016 | ✓ |

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 Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| DUP4, 16, 17 | **03-Jul-2016** | **12-Jul-2016** | 10-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| M25-S, M25-M, M25-D | **04-Jul-2016** | **12-Jul-2016** | 11-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| DUP5, M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **12-Jul-2016** | 12-Jul-2016 | ✓ | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | **06-Jul-2016** | **12-Jul-2016** | 13-Jul-2016 | ✓ | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| 28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D, Rinsate | **07-Jul-2016** | **12-Jul-2016** | 14-Jul-2016 | ✓ | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **12-Jul-2016** | 02-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M8-S, M8-D | **26-Jun-2016** | **12-Jul-2016** | 03-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071-SV)** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **12-Jul-2016** | 04-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| TRIP2 | **28-Jun-2016** | **12-Jul-2016** | 05-Jul-2016 | × | **15-Jul-2016** | 21-Aug-2016 | ✓ |

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 Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued** | | | | | | | |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| 24-b | **02-Jul-2016** | **13-Jul-2016** | 16-Jul-2016 | ✓ | **13-Jul-2016** | 16-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| DUP4, 16, 17 | **03-Jul-2016** | **13-Jul-2016** | 17-Jul-2016 | ✓ | **13-Jul-2016** | 17-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| M25-S, M25-M, M25-D | **04-Jul-2016** | **13-Jul-2016** | 18-Jul-2016 | ✓ | **13-Jul-2016** | 18-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| DUP5, M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **13-Jul-2016** | 19-Jul-2016 | ✓ | **13-Jul-2016** | 19-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | **06-Jul-2016** | **13-Jul-2016** | 20-Jul-2016 | ✓ | **13-Jul-2016** | 20-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| 28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D, Rinsate | **07-Jul-2016** | **13-Jul-2016** | 21-Jul-2016 | ✓ | **13-Jul-2016** | 21-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| TRIP BLANK 1 | **19-Jan-2016** | **13-Jul-2016** | 02-Feb-2016 | × | **13-Jul-2016** | 02-Feb-2016 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **13-Jul-2016** | 09-Jul-2016 | × | **13-Jul-2016** | 09-Jul-2016 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |

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 Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued** | | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | **26-Jun-2016** | **13-Jul-2016** | 10-Jul-2016 | × | **13-Jul-2016** | 10-Jul-2016 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** 18 | **27-Jun-2016** | **13-Jul-2016** | 11-Jul-2016 | × | **13-Jul-2016** | 11-Jul-2016 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** TRIP2, 21 | **28-Jun-2016** | **13-Jul-2016** | 12-Jul-2016 | × | **13-Jul-2016** | 12-Jul-2016 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** 20 | **29-Jun-2016** | **13-Jul-2016** | 13-Jul-2016 | ✓ | **13-Jul-2016** | 13-Jul-2016 | ✓ |

Matrix: **WATER**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EP080: BTEXN** | | | | | | | |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| 24-b | **02-Jul-2016** | **13-Jul-2016** | 16-Jul-2016 | ✓ | **13-Jul-2016** | 16-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| DUP4, 16, 17 | **03-Jul-2016** | **13-Jul-2016** | 17-Jul-2016 | ✓ | **13-Jul-2016** | 17-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| M25-S, M25-M, M25-D | **04-Jul-2016** | **13-Jul-2016** | 18-Jul-2016 | ✓ | **13-Jul-2016** | 18-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| DUP5, M31-S, M31-M, M31-D, M37-S, M37-M, M37-D | **05-Jul-2016** | **13-Jul-2016** | 19-Jul-2016 | ✓ | **13-Jul-2016** | 19-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| M43-S, M43-M, M43-D, M13-S, M13-M, M13-D | **06-Jul-2016** | **13-Jul-2016** | 20-Jul-2016 | ✓ | **13-Jul-2016** | 20-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| 28, 29, TRIP3, M19-S, M19-D, M17-S, M17-D, M21-S, M21-D, M22-S, M22-D, Rinsate | **07-Jul-2016** | **13-Jul-2016** | 21-Jul-2016 | ✓ | **13-Jul-2016** | 21-Jul-2016 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| TRIP BLANK 1 | **19-Jan-2016** | **13-Jul-2016** | 02-Feb-2016 | × | **13-Jul-2016** | 02-Feb-2016 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| M2-S, M2-D, M3-S, M3-M, M3-D, M4-S, M4-M, M4-D, M11-S, M11-M, M11-D, M12-S, M12-M, M12-D, M6-S, M6-D, M9-S, M9-M, M9-D, M10-S, M10-D | **25-Jun-2016** | **13-Jul-2016** | 09-Jul-2016 | × | **13-Jul-2016** | 09-Jul-2016 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |

Matrix: **WATER**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EP080: BTEXN - Continued** | | | | | | | |
| M1-S, M1-D, M5-S, M5-D, DUP1, DUP2, TRIP1, M7-S, M7-D, M8-S, M8-D | **26-Jun-2016** | **13-Jul-2016** | 10-Jul-2016 | × | **13-Jul-2016** | 10-Jul-2016 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** 18 | **27-Jun-2016** | **13-Jul-2016** | 11-Jul-2016 | × | **13-Jul-2016** | 11-Jul-2016 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** TRIP2, 21 | **28-Jun-2016** | **13-Jul-2016** | 12-Jul-2016 | × | **13-Jul-2016** | 12-Jul-2016 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** 20 | **29-Jun-2016** | **13-Jul-2016** | 13-Jul-2016 | ✓ | **13-Jul-2016** | 13-Jul-2016 | ✓ |

# 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)** | | | | | | | |
| Ammonia as N by Discrete analyser | EK055G | 8 | 75 | **10.67** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Mercury by FIMS | EG035F | 8 | 72 | **11.11** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS | EG094A-F | 2 | 9 | **22.22** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS | EG094B-F | 2 | 9 | **22.22** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Saline Water -Suite A by ORC-ICPMS | EG093A-F | 6 | 63 | **9.52** | **10.00** | × | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Saline Water -Suite B by ORC-ICPMS | EG093B-F | 5 | 63 | **7.94** | **10.00** | × | NEPM 2013 B3 & ALS QC Standard |
| Nitrite and Nitrate as N (NOx) by Discrete Analyser | EK059G | 8 | 72 | **11.11** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Nitrite as N by Discrete Analyser | EK057G | 8 | 71 | **11.27** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (GC/MS - SIM) | EP075(SIM) | 0 | 64 | **0.00** | **10.00** | × | NEPM 2013 B3 & ALS QC Standard |
| Reactive Phosphorus as P-By Discrete Analyser | EK071G | 8 | 71 | **11.27** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Suspended Solids | EA025 | 8 | 71 | **11.27** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Kjeldahl Nitrogen as N By Discrete Analyser | EK061G | 8 | 79 | **10.13** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 8 | 72 | **11.11** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Fresh Water -Suite A by ORC-ICPMS | EG094A-T | 2 | 9 | **22.22** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Fresh Water -Suite B by ORC-ICPMS | EG094B-T | 2 | 9 | **22.22** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Saline Water Suite A by ORC-ICPMS | EG093A-T | 7 | 63 | **11.11** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Saline Water -Suite B by ORC-ICPMS | EG093B-T | 7 | 63 | **11.11** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Phosphorus as P By Discrete Analyser | EK067G | 8 | 80 | **10.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 0 | 63 | **0.00** | **10.00** | × | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fractions Only | EP071-SV | 0 | 1 | **0.00** | **10.00** | × | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 8 | 69 | **11.59** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| **Laboratory Control Samples (LCS)** | | | | | | | |
| Ammonia as N by Discrete analyser | EK055G | 4 | 75 | **5.33** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Chlorophyll a and Pheophytin a | EP008 | 4 | 71 | **5.63** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Mercury by FIMS | EG035F | 4 | 72 | **5.56** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS | EG094A-F | 2 | 9 | **22.22** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS | EG094B-F | 2 | 9 | **22.22** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Saline Water -Suite A by ORC-ICPMS | EG093A-F | 4 | 63 | **6.35** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Saline Water -Suite B by ORC-ICPMS | EG093B-F | 4 | 63 | **6.35** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Nitrite and Nitrate as N (NOx) by Discrete Analyser | EK059G | 4 | 72 | **5.56** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Nitrite as N by Discrete Analyser | EK057G | 4 | 71 | **5.63** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (GC/MS - SIM) | EP075(SIM) | 4 | 64 | **6.25** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Reactive Phosphorus as P-By Discrete Analyser | EK071G | 4 | 71 | **5.63** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Suspended Solids | EA025 | 8 | 71 | **11.27** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Kjeldahl Nitrogen as N By Discrete Analyser | EK061G | 4 | 79 | **5.06** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 4 | 72 | **5.56** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |

Matrix: **WATER**

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

| Quality Control Sample Type | | Count | | Rate (%) | | | Quality Control Specification |
|---|---|---|---|---|---|---|---|
| *Analytical Methods* | *Method* | *QC* | *Regular* | ***Actual*** | ***Expected*** | *Evaluation* | |
| **Laboratory Control Samples (LCS) - Continued** | | | | | | | |
| Total Metals in Fresh Water -Suite A by ORC-ICPMS | EG094A-T | 2 | 9 | **22.22** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Fresh Water -Suite B by ORC-ICPMS | EG094B-T | 2 | 9 | **22.22** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Saline Water Suite A by ORC-ICPMS | EG093A-T | 4 | 63 | **6.35** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Saline Water -Suite B by ORC-ICPMS | EG093B-T | 4 | 63 | **6.35** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Phosphorus as P By Discrete Analyser | EK067G | 4 | 80 | **5.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 4 | 63 | **6.35** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fractions Only | EP071-SV | 1 | 1 | **100.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 5 | 69 | **7.25** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| **Method Blanks (MB)** | | | | | | | |
| Ammonia as N by Discrete analyser | EK055G | 4 | 75 | **5.33** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Chlorophyll a and Pheophytin a | EP008 | 4 | 71 | **5.63** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Mercury by FIMS | EG035F | 4 | 72 | **5.56** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS | EG094A-F | 2 | 9 | **22.22** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS | EG094B-F | 2 | 9 | **22.22** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Saline Water -Suite A by ORC-ICPMS | EG093A-F | 4 | 63 | **6.35** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Saline Water -Suite B by ORC-ICPMS | EG093B-F | 4 | 63 | **6.35** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Nitrite and Nitrate as N (NOx) by Discrete Analyser | EK059G | 4 | 72 | **5.56** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Nitrite as N by Discrete Analyser | EK057G | 4 | 71 | **5.63** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (GC/MS - SIM) | EP075(SIM) | 4 | 64 | **6.25** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Reactive Phosphorus as P-By Discrete Analyser | EK071G | 4 | 71 | **5.63** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Suspended Solids | EA025 | 4 | 71 | **5.63** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Kjeldahl Nitrogen as N By Discrete Analyser | EK061G | 4 | 79 | **5.06** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 4 | 72 | **5.56** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Fresh Water -Suite A by ORC-ICPMS | EG094A-T | 2 | 9 | **22.22** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Fresh Water -Suite B by ORC-ICPMS | EG094B-T | 2 | 9 | **22.22** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Saline Water Suite A by ORC-ICPMS | EG093A-T | 4 | 63 | **6.35** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Saline Water -Suite B by ORC-ICPMS | EG093B-T | 4 | 63 | **6.35** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Phosphorus as P By Discrete Analyser | EK067G | 4 | 80 | **5.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 4 | 63 | **6.35** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fractions Only | EP071-SV | 1 | 1 | **100.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 5 | 69 | **7.25** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| **Matrix Spikes (MS)** | | | | | | | |
| Ammonia as N by Discrete analyser | EK055G | 4 | 75 | **5.33** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Mercury by FIMS | EG035F | 4 | 72 | **5.56** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS | EG094A-F | 2 | 9 | **22.22** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Saline Water -Suite A by ORC-ICPMS | EG093A-F | 3 | 63 | **4.76** | **5.00** | × | NEPM 2013 B3 & ALS QC Standard |
| Nitrite and Nitrate as N (NOx) by Discrete Analyser | EK059G | 4 | 72 | **5.56** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Nitrite as N by Discrete Analyser | EK057G | 4 | 71 | **5.63** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (GC/MS - SIM) | EP075(SIM) | 0 | 64 | **0.00** | **5.00** | × | NEPM 2013 B3 & ALS QC Standard |
| Reactive Phosphorus as P-By Discrete Analyser | EK071G | 4 | 71 | **5.63** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |

Matrix: **WATER**

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

| Quality Control Sample Type | | Count | | Rate (%) | | | Quality Control Specification |
|---|---|---|---|---|---|---|---|
| *Analytical Methods* | *Method* | *QC* | *Regular* | ***Actual*** | ***Expected*** | *Evaluation* | |
| Matrix Spikes (MS) - Continued | | | | | | | |
| Total Kjeldahl Nitrogen as N By Discrete Analyser | EK061G | 4 | 79 | **5.06** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 4 | 72 | **5.56** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Fresh Water -Suite A by ORC-ICPMS | EG094A-T | 2 | 9 | **22.22** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Saline Water Suite A by ORC-ICPMS | EG093A-T | 4 | 63 | **6.35** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Phosphorus as P By Discrete Analyser | EK067G | 4 | 80 | **5.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 0 | 63 | **0.00** | **5.00** | × | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fractions Only | EP071-SV | 0 | 1 | **0.00** | **5.00** | × | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 5 | 69 | **7.25** | **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 |
|---|---|---|---|
| Suspended Solids | EA025 | WATER | In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of `non-filterable` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM (2013) Schedule B(3) |
| 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) |
| Total Mercury by FIMS | EG035T | WATER | In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) |
| Dissolved Metals in Saline Water -Suite A by ORC-ICPMS | EG093A-F | WATER | In house: Referenced to APHA 3125; USEPA SW846 - 6020 Samples are 0.45µm filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) |
| Total Metals in Saline Water Suite A by ORC-ICPMS | EG093A-T | WATER | In house: Referenced to APHA 3125; USEPA SW846 - 6020. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) |
| Dissolved Metals in Saline Water -Suite B by ORC-ICPMS | EG093B-F | WATER | In house: Referenced to APHA 3125; USEPA SW846 - 6020 Samples are 0.45µm filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) |
| Total Metals in Saline Water -Suite B by ORC-ICPMS | EG093B-T | WATER | In house: Referenced to APHA 3125; USEPA SW846 - 6020. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) |

| Analytical Methods | Method | Matrix | Method Descriptions |
|---|---|---|---|
| Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS | EG094A-F | WATER | In house: Referenced to APHA 3125; USEPA SW846 - 6020 Samples are 0.45µm filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) |
| Total Metals in Fresh Water -Suite A by ORC-ICPMS | EG094A-T | WATER | In house: Referenced to APHA 3125; USEPA SW846 - 6020. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) |
| Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS | EG094B-F | WATER | In house: Referenced to APHA 3125; USEPA SW846 - 6020 Samples are 0.45µm filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) |
| Total Metals in Fresh Water -Suite B by ORC-ICPMS | EG094B-T | WATER | In house: Referenced to APHA 3125; USEPA SW846 - 6020. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) |
| Ammonia as N by Discrete analyser | EK055G | WATER | In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3) |
| Nitrite as N by Discrete Analyser | EK057G | WATER | In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3) |
| Nitrate as N by Discrete Analyser | EK058G | WATER | In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (2013) Schedule B(3) |
| Nitrite and Nitrate as N (NOx) by Discrete Analyser | EK059G | WATER | In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3) |
| Total Kjeldahl Nitrogen as N By Discrete Analyser | EK061G | WATER | In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM (2013) Schedule B(3) |
| Total Nitrogen as N (TKN + Nox) By Discrete Analyser | EK062G | WATER | In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM (2013) Schedule B(3) |
| Total Phosphorus as P By Discrete Analyser | EK067G | WATER | In house: Referenced to APHA 4500-P H, Jirka et al (1976), Zhang et al (2006). This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM (2013) Schedule B(3) |

| Analytical Methods | Method | Matrix | Method Descriptions |
|---|---|---|---|
| Reactive Phosphorus as P-By Discrete Analyser | EK071G | WATER | In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3) |
| Chlorophyll a and Pheophytin a | EP008 | WATER | In house: Referenced to APHA 10200 H. The pigments are extracted into aqueous acetone. The optical density of the extract before and after acidification at both 664 nm and 665 nm is determined spectrometrically. |
| 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) |
| TRH - Semivolatile Fractions Only | EP071-SV | 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 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 |
|---|---|---|---|
| TKN/TP Digestion | EK061/EK067 | WATER | In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM (2013) Schedule B(3) |
| Digestion for Total Recoverable Metals - ORC | EN25-ORC | WATER | In house: Referenced to USEPA SW846-3005. This is an Ultrapure Nitric acid digestion procedure used to prepare surface and ground water samples for analysis by ORC- ICPMS. This method is compliant with NEPM (2013) Schedule B(3) |
| Separatory Funnel Extraction of Liquids | ORG14 | WATER | In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container. |
| Volatiles Water Preparation | ORG16-W | WATER | A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging. |

ALS Environmental

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **Work Order** | : **EB1617705** | Page | : 1 of 27 |
| Client | : **BMT WBM GROUP LTD** | Laboratory | : Environmental Division Brisbane |
| Contact | : MR JEREMY VISSER | Contact | : John Pickering |
| Address | : PO BOX 203 SPRING HILL BRISBANE QLD 4004 | Address | : 2 Byth Street Stafford QLD Australia 4053 |
| Telephone | : +61 07 3831 6744 | Telephone | : +61 7 3552 8634 |
| Project | : B21414 Elk | Date Samples Received | : 11-Jul-2016 12:05 |
| Order number | : ---- | Date Analysis Commenced | : 11-Jul-2016 |
| C-O-C number | : ---- | Issue Date | : 27-Jul-2016 14:54 |
| Sampler | : CONOR JONES, DANIEL MORAN | | |
| Site | : ---- | | |
| Quote number | : ---- | | |
| No. of samples received | : 31 | | |
| No. of samples analysed | : 27 | | |

NATA Accredited Laboratory 825
Accredited for compliance with ISO/IEC 17025.

NATA
WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

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* |
|---|---|---|
| Kim McCabe | Senior Inorganic Chemist | Brisbane Inorganics, Stafford, QLD |
| Matt Frost | Senior Organic Chemist | Brisbane Organics, Stafford, QLD |
| Satishkumar Trivedi | Acid Sulfate Soils Supervisor | Brisbane Acid Sulphate Soils, Stafford, QLD |

## 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.

- EP071: The LOR's for particular samples have been raised due to high moisture content.
- EG020T (Total Metals): Some Method Blanks are above LOR but are not considered significant compared to analyte levels in the samples.
- EP080: Sample EB1617705_022 shows poor matrix spike recovery due to high moisture content.
- EP075(SIM): High LCS recovery deemed acceptable as all associated analyte results are less than LOR
- 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, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M6 | M3 | M9 | M10 | M4 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 08:40 | 25-Jun-2016 10:40 | 25-Jun-2016 12:08 | 25-Jun-2016 13:00 | 25-Jun-2016 14:00 |
| Compound | CAS Number | LOR | Unit | | EB1617705-001 | EB1617705-002 | EB1617705-003 | EB1617705-004 | EB1617705-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EA055: Moisture Content** | | | | | | | | | |
| Moisture Content (dried @ 103°C) | ---- | 1 | % | | 48.2 | 64.2 | 66.6 | 61.8 | 66.1 |
| **EA150: Particle Sizing** | | | | | | | | | |
| +75µm | ---- | 1 | % | | <1 | 2 | 3 | 3 | <1 |
| +150µm | ---- | 1 | % | | <1 | <1 | 1 | <1 | <1 |
| +300µm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +425µm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +600µm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +1180µm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +2.36mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +4.75mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +9.5mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +19.0mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +37.5mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +75.0mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| **EA150: Soil Classification based on Particle Size** | | | | | | | | | |
| Clay (<2 µm) | ---- | 1 | % | | 27 | 39 | 42 | 33 | 45 |
| Silt (2-60 µm) | ---- | 1 | % | | 71 | 56 | 53 | 61 | 52 |
| Sand (0.06-2.00 mm) | ---- | 1 | % | | 2 | 5 | 5 | 6 | 3 |
| Gravel (>2mm) | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| Cobbles (>6cm) | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| **EA152: Soil Particle Density** | | | | | | | | | |
| Soil Particle Density (Clay/Silt/Sand) | ---- | 0.01 | g/cm3 | | 2.66 | 2.66 | 2.60 | 2.67 | 2.58 |
| **EG005T: Total Metals by ICP-AES** | | | | | | | | | |
| Aluminium | 7429-90-5 | 50 | mg/kg | | 34400 | 37900 | 40600 | 40000 | 39400 |
| Arsenic | 7440-38-2 | 5 | mg/kg | | 10 | 10 | 11 | 11 | 14 |
| Barium | 7440-39-3 | 10 | mg/kg | | 20 | 10 | 10 | 20 | 20 |
| Iron | 7439-89-6 | 50 | mg/kg | | 54300 | 55800 | 55600 | 57800 | 56200 |
| Strontium | 7440-24-6 | 2 | mg/kg | | 35 | 50 | 52 | 53 | 51 |
| Tin | 7440-31-5 | 5 | mg/kg | | <5 | <5 | <5 | <5 | <5 |
| **EG020T: Total Metals by ICP-MS** | | | | | | | | | |
| Selenium | 7782-49-2 | 1 | mg/kg | | <1 | <1 | <1 | <1 | <1 |
| Silver | 7440-22-4 | 0.1 | mg/kg | | 0.1 | 0.6 | 0.6 | 0.2 | 0.4 |
| Thallium | 7440-28-0 | 0.1 | mg/kg | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Beryllium | 7440-41-7 | 0.1 | mg/kg | | 0.6 | 0.7 | 0.8 | 0.7 | 0.7 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M6 | M3 | M9 | M10 | M4 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 08:40 | 25-Jun-2016 10:40 | 25-Jun-2016 12:08 | 25-Jun-2016 13:00 | 25-Jun-2016 14:00 |
| Compound | CAS Number | LOR | Unit | | EB1617705-001 | EB1617705-002 | EB1617705-003 | EB1617705-004 | EB1617705-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EG020T: Total Metals by ICP-MS - Continued** | | | | | | | | | |
| Cadmium | 7440-43-9 | 0.1 | mg/kg | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Cobalt | 7440-48-4 | 0.1 | mg/kg | | 21.8 | 21.5 | 21.3 | 23.5 | 21.8 |
| Chromium | 7440-47-3 | 0.1 | mg/kg | | 63.7 | 67.7 | 64.4 | 71.0 | 68.6 |
| Copper | 7440-50-8 | 0.1 | mg/kg | | 39.4 | 61.5 | 64.6 | 59.3 | 60.8 |
| Manganese | 7439-96-5 | 0.1 | mg/kg | | 708 | 708 | 736 | 817 | 869 |
| Molybdenum | 7439-98-7 | 0.1 | mg/kg | | 0.3 | 0.6 | 0.5 | 0.6 | 0.5 |
| Nickel | 7440-02-0 | 0.1 | mg/kg | | 47.6 | 51.2 | 49.6 | 51.5 | 51.6 |
| Lead | 7439-92-1 | 0.1 | mg/kg | | 8.4 | 11.2 | 11.8 | 10.5 | 11.2 |
| Antimony | 7440-36-0 | 0.1 | mg/kg | | <0.1 | 0.1 | 0.1 | <0.1 | <0.1 |
| Zinc | 7440-66-6 | 0.5 | mg/kg | | 87.9 | 95.6 | 95.7 | 92.2 | 94.6 |
| Vanadium | 7440-62-2 | 1 | mg/kg | | 100 | 108 | 108 | 112 | 112 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | | <0.1 | <0.1 | <0.1 | <0.1 | 0.1 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 20 | mg/kg | | 930 | 1840 | 1940 | 1810 | 1810 |
| **EK062: Total Nitrogen as N (TKN + NOx)** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 20 | mg/kg | | 930 | 1840 | 1940 | 1810 | 1810 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 2 | mg/kg | | 580 | 608 | 661 | 683 | 619 |
| **EP004: Organic Matter** | | | | | | | | | |
| Organic Matter | ---- | 0.5 | % | | 3.1 | 7.2 | 5.9 | 6.2 | 5.8 |
| Total Organic Carbon | ---- | 0.5 | % | | 1.8 | 4.2 | 3.4 | 3.6 | 3.4 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Acenaphthylene | 208-96-8 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Acenaphthene | 83-32-9 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Fluorene | 86-73-7 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Phenanthrene | 85-01-8 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Anthracene | 120-12-7 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Fluoranthene | 206-44-0 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Pyrene | 129-00-0 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M6 | M3 | M9 | M10 | M4 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 08:40 | 25-Jun-2016 10:40 | 25-Jun-2016 12:08 | 25-Jun-2016 13:00 | 25-Jun-2016 14:00 |
| Compound | CAS Number | LOR | Unit | | EB1617705-001 | EB1617705-002 | EB1617705-003 | EB1617705-004 | EB1617705-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Chrysene | 218-01-9 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (half LOR) | ---- | 0.5 | mg/kg | | **0.6** | **0.6** | **0.6** | **0.6** | **0.6** |
| ^ Benzo(a)pyrene TEQ (LOR) | ---- | 0.5 | mg/kg | | **1.2** | **1.2** | **1.2** | **1.2** | **1.2** |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 10 | mg/kg | | <10 | <10 | <10 | <10 | <10 |
| C10 - C14 Fraction | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| C15 - C28 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| C29 - C36 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 10 | mg/kg | | <10 | <10 | <10 | <10 | <10 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 10 | mg/kg | | <10 | <10 | <10 | <10 | <10 |
| >C10 - C16 Fraction | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| >C16 - C34 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 0.2 | mg/kg | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Toluene | 108-88-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | 100-41-4 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ortho-Xylene | 95-47-6 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M6 | M3 | M9 | M10 | M4 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 08:40 | 25-Jun-2016 10:40 | 25-Jun-2016 12:08 | 25-Jun-2016 13:00 | 25-Jun-2016 14:00 |
| Compound | CAS Number | LOR | Unit | | EB1617705-001 | EB1617705-002 | EB1617705-003 | EB1617705-004 | EB1617705-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080: BTEXN - Continued** | | | | | | | | | |
| ^ **Sum of BTEX** | ---- | 0.2 | mg/kg | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| ^ **Total Xylenes** | 1330-20-7 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Naphthalene** | 91-20-3 | 1 | mg/kg | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 0.5 | % | | **113** | **98.9** | **112** | **116** | **156** |
| **Anthracene-d10** | 1719-06-8 | 0.5 | % | | **84.1** | **71.0** | **84.5** | **85.7** | **120** |
| **4-Terphenyl-d14** | 1718-51-0 | 0.5 | % | | **109** | **94.1** | **107** | **108** | **155** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 0.2 | % | | **99.7** | **87.1** | **79.6** | **85.3** | **83.2** |
| **Toluene-D8** | 2037-26-5 | 0.2 | % | | **97.9** | **83.8** | **78.2** | **88.0** | **84.5** |
| **4-Bromofluorobenzene** | 460-00-4 | 0.2 | % | | **115** | **96.6** | **96.8** | **102** | **95.4** |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M12 | M11 | M2 | M8 | M5 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 14:55 | 25-Jun-2016 15:55 | 25-Jun-2016 16:45 | 26-Jun-2016 08:40 | 26-Jun-2016 10:45 |
| Compound | CAS Number | LOR | Unit | | EB1617705-006 | EB1617705-007 | EB1617705-008 | EB1617705-009 | EB1617705-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EA055: Moisture Content** | | | | | | | | | |
| Moisture Content (dried @ 103°C) | ---- | 1 | % | | 62.2 | 63.1 | 62.2 | 44.6 | 42.9 |
| **EA150: Particle Sizing** | | | | | | | | | |
| +75µm | ---- | 1 | % | | <1 | <1 | <1 | 2 | 2 |
| +150µm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +300µm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +425µm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +600µm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +1180µm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +2.36mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +4.75mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +9.5mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +19.0mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +37.5mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +75.0mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| **EA150: Soil Classification based on Particle Size** | | | | | | | | | |
| Clay (<2 µm) | ---- | 1 | % | | 49 | 39 | 45 | 27 | 21 |
| Silt (2-60 µm) | ---- | 1 | % | | 49 | 58 | 52 | 64 | 73 |
| Sand (0.06-2.00 mm) | ---- | 1 | % | | 2 | 3 | 3 | 9 | 6 |
| Gravel (>2mm) | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| Cobbles (>6cm) | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| **EA152: Soil Particle Density** | | | | | | | | | |
| Soil Particle Density (Clay/Silt/Sand) | ---- | 0.01 | g/cm3 | | 2.76 | 2.91 | 2.72 | 2.88 | 2.67 |
| **EG005T: Total Metals by ICP-AES** | | | | | | | | | |
| Aluminium | 7429-90-5 | 50 | mg/kg | | 39800 | 35800 | 35300 | 30500 | 30100 |
| Arsenic | 7440-38-2 | 5 | mg/kg | | 12 | 12 | 11 | 6 | 6 |
| Barium | 7440-39-3 | 10 | mg/kg | | 20 | 20 | 10 | 10 | 10 |
| Iron | 7439-89-6 | 50 | mg/kg | | 59000 | 55600 | 54200 | 48700 | 48100 |
| Strontium | 7440-24-6 | 2 | mg/kg | | 55 | 60 | 53 | 32 | 28 |
| Tin | 7440-31-5 | 5 | mg/kg | | <5 | <5 | <5 | <5 | <5 |
| **EG020T: Total Metals by ICP-MS** | | | | | | | | | |
| Selenium | 7782-49-2 | 1 | mg/kg | | <1 | <1 | <1 | <1 | <1 |
| Silver | 7440-22-4 | 0.1 | mg/kg | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Thallium | 7440-28-0 | 0.1 | mg/kg | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Beryllium | 7440-41-7 | 0.1 | mg/kg | | 0.8 | 0.7 | 0.7 | 0.5 | 0.5 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M12 | M11 | M2 | M8 | M5 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 14:55 | 25-Jun-2016 15:55 | 25-Jun-2016 16:45 | 26-Jun-2016 08:40 | 26-Jun-2016 10:45 |
| Compound | CAS Number | LOR | Unit | | EB1617705-006 | EB1617705-007 | EB1617705-008 | EB1617705-009 | EB1617705-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EG020T: Total Metals by ICP-MS - Continued** | | | | | | | | | |
| Cadmium | 7440-43-9 | 0.1 | mg/kg | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Cobalt | 7440-48-4 | 0.1 | mg/kg | | 21.6 | 19.9 | 19.2 | 19.9 | 19.7 |
| Chromium | 7440-47-3 | 0.1 | mg/kg | | 63.0 | 54.7 | 53.5 | 57.6 | 57.6 |
| Copper | 7440-50-8 | 0.1 | mg/kg | | 53.3 | 54.9 | 51.9 | 37.0 | 36.4 |
| Manganese | 7439-96-5 | 0.1 | mg/kg | | 810 | 1080 | 640 | 658 | 661 |
| Molybdenum | 7439-98-7 | 0.1 | mg/kg | | 0.4 | 0.4 | 0.4 | 0.2 | 0.3 |
| Nickel | 7440-02-0 | 0.1 | mg/kg | | 50.8 | 46.0 | 45.5 | 42.6 | 41.3 |
| Lead | 7439-92-1 | 0.1 | mg/kg | | 11.5 | 11.1 | 10.7 | 7.8 | 7.3 |
| Antimony | 7440-36-0 | 0.1 | mg/kg | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Zinc | 7440-66-6 | 0.5 | mg/kg | | 99.7 | 95.1 | 93.2 | 79.4 | 79.1 |
| Vanadium | 7440-62-2 | 1 | mg/kg | | 108 | 100 | 94 | 90 | 89 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | | 0.1 | <0.1 | <0.1 | <0.1 | 0.1 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 20 | mg/kg | | 1420 | 1610 | 1590 | 850 | 870 |
| **EK062: Total Nitrogen as N (TKN + NOx)** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 20 | mg/kg | | 1420 | 1610 | 1590 | 850 | 870 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 2 | mg/kg | | 714 | 773 | 744 | 583 | 564 |
| **EP004: Organic Matter** | | | | | | | | | |
| Organic Matter | ---- | 0.5 | % | | 3.9 | 3.9 | 3.6 | 2.4 | 2.5 |
| Total Organic Carbon | ---- | 0.5 | % | | 2.3 | 2.2 | 2.1 | 1.4 | 1.4 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Acenaphthylene | 208-96-8 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Acenaphthene | 83-32-9 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Fluorene | 86-73-7 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Phenanthrene | 85-01-8 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Anthracene | 120-12-7 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Fluoranthene | 206-44-0 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Pyrene | 129-00-0 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M12 | M11 | M2 | M8 | M5 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 14:55 | 25-Jun-2016 15:55 | 25-Jun-2016 16:45 | 26-Jun-2016 08:40 | 26-Jun-2016 10:45 |
| Compound | CAS Number | LOR | Unit | | EB1617705-006 | EB1617705-007 | EB1617705-008 | EB1617705-009 | EB1617705-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Chrysene | 218-01-9 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (half LOR) | ---- | 0.5 | mg/kg | | **0.6** | **0.6** | **0.6** | **0.6** | **0.6** |
| ^ Benzo(a)pyrene TEQ (LOR) | ---- | 0.5 | mg/kg | | **1.2** | **1.2** | **1.2** | **1.2** | **1.2** |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 10 | mg/kg | | <10 | <10 | <10 | <10 | <10 |
| C10 - C14 Fraction | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| C15 - C28 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| C29 - C36 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 10 | mg/kg | | <10 | <10 | <10 | <10 | <10 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 10 | mg/kg | | <10 | <10 | <10 | <10 | <10 |
| >C10 - C16 Fraction | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| >C16 - C34 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 0.2 | mg/kg | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Toluene | 108-88-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | 100-41-4 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ortho-Xylene | 95-47-6 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M12 | M11 | M2 | M8 | M5 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jun-2016 14:55 | 25-Jun-2016 15:55 | 25-Jun-2016 16:45 | 26-Jun-2016 08:40 | 26-Jun-2016 10:45 |
| Compound | CAS Number | LOR | Unit | | EB1617705-006 | EB1617705-007 | EB1617705-008 | EB1617705-009 | EB1617705-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080: BTEXN - Continued** | | | | | | | | | |
| ^ **Sum of BTEX** | ---- | 0.2 | mg/kg | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| ^ **Total Xylenes** | 1330-20-7 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Naphthalene** | 91-20-3 | 1 | mg/kg | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 0.5 | % | | **119** | **134** | **128** | **114** | **118** |
| **Anthracene-d10** | 1719-06-8 | 0.5 | % | | **86.4** | **101** | **82.9** | **82.0** | **86.6** |
| **4-Terphenyl-d14** | 1718-51-0 | 0.5 | % | | **116** | **129** | **115** | **114** | **111** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 0.2 | % | | **92.1** | **94.4** | **88.2** | **93.2** | **94.9** |
| **Toluene-D8** | 2037-26-5 | 0.2 | % | | **87.4** | **93.4** | **89.7** | **93.0** | **94.0** |
| **4-Bromofluorobenzene** | 460-00-4 | 0.2 | % | | **104** | **109** | **107** | **110** | **110** |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M1 | M7 | 18 | 19 | 21 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jun-2016 12:00 | 26-Jun-2016 13:15 | 27-Jun-2016 09:00 | 27-Jun-2016 13:30 | 28-Jun-2016 09:00 |
| Compound | CAS Number | LOR | Unit | | EB1617705-011 | EB1617705-012 | EB1617705-013 | EB1617705-014 | EB1617705-015 |
| | | | | | Result | Result | Result | Result | Result |
| **EA055: Moisture Content** | | | | | | | | | |
| Moisture Content (dried @ 103°C) | ---- | 1 | % | | 48.1 | 25.8 | 45.7 | 46.9 | 27.4 |
| **EA150: Particle Sizing** | | | | | | | | | |
| +75µm | ---- | 1 | % | | <1 | 43 | 4 | 27 | 97 |
| +150µm | ---- | 1 | % | | <1 | <1 | <1 | 5 | 80 |
| +300µm | ---- | 1 | % | | <1 | <1 | <1 | <1 | 2 |
| +425µm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +600µm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +1180µm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +2.36mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +4.75mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +9.5mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +19.0mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +37.5mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| +75.0mm | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| **EA150: Soil Classification based on Particle Size** | | | | | | | | | |
| Clay (<2 µm) | ---- | 1 | % | | 28 | 20 | 26 | 23 | 1 |
| Silt (2-60 µm) | ---- | 1 | % | | 66 | 25 | 65 | 44 | 2 |
| Sand (0.06-2.00 mm) | ---- | 1 | % | | 6 | 55 | 9 | 33 | 97 |
| Gravel (>2mm) | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| Cobbles (>6cm) | ---- | 1 | % | | <1 | <1 | <1 | <1 | <1 |
| **EA152: Soil Particle Density** | | | | | | | | | |
| Soil Particle Density (Clay/Silt/Sand) | ---- | 0.01 | g/cm3 | | 2.67 | 2.72 | 2.59 | 2.67 | 2.71 |
| **EG005T: Total Metals by ICP-AES** | | | | | | | | | |
| Aluminium | 7429-90-5 | 50 | mg/kg | | 32600 | 22200 | 27900 | 31900 | 21600 |
| Arsenic | 7440-38-2 | 5 | mg/kg | | 11 | 6 | 5 | 10 | <5 |
| Barium | 7440-39-3 | 10 | mg/kg | | 20 | 10 | 100 | 20 | 20 |
| Iron | 7439-89-6 | 50 | mg/kg | | 51600 | 41500 | 49300 | 52600 | 34800 |
| Strontium | 7440-24-6 | 2 | mg/kg | | 35 | 10 | 90 | 61 | 18 |
| Tin | 7440-31-5 | 5 | mg/kg | | <5 | <5 | <5 | <5 | <5 |
| **EG020T: Total Metals by ICP-MS** | | | | | | | | | |
| Selenium | 7782-49-2 | 1 | mg/kg | | <1 | <1 | <1 | <1 | <1 |
| Silver | 7440-22-4 | 0.1 | mg/kg | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Thallium | 7440-28-0 | 0.1 | mg/kg | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Beryllium | 7440-41-7 | 0.1 | mg/kg | | 0.6 | 0.4 | 0.6 | 0.6 | 0.3 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Client sample ID | M1 | M7 | 18 | 19 | 21 |
|---|---|---|---|---|---|---|---|---|
| | | | Client sampling date / time | 26-Jun-2016 12:00 | 26-Jun-2016 13:15 | 27-Jun-2016 09:00 | 27-Jun-2016 13:30 | 28-Jun-2016 09:00 |
| Compound | CAS Number | LOR | Unit | EB1617705-011 | EB1617705-012 | EB1617705-013 | EB1617705-014 | EB1617705-015 |
| | | | | Result | Result | Result | Result | Result |
| **EG020T: Total Metals by ICP-MS - Continued** | | | | | | | | |
| Cadmium | 7440-43-9 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Cobalt | 7440-48-4 | 0.1 | mg/kg | **20.1** | **16.9** | **20.0** | **20.8** | **16.3** |
| Chromium | 7440-47-3 | 0.1 | mg/kg | **59.1** | **46.8** | **45.2** | **59.6** | **37.0** |
| Copper | 7440-50-8 | 0.1 | mg/kg | **43.8** | **18.6** | **43.4** | **43.0** | **12.4** |
| Manganese | 7439-96-5 | 0.1 | mg/kg | **742** | **553** | **741** | **793** | **319** |
| Molybdenum | 7439-98-7 | 0.1 | mg/kg | **0.3** | **0.1** | **0.3** | **0.9** | **0.1** |
| Nickel | 7440-02-0 | 0.1 | mg/kg | **44.8** | **34.4** | **40.7** | **45.0** | **29.0** |
| Lead | 7439-92-1 | 0.1 | mg/kg | **8.0** | **6.0** | **9.1** | **8.6** | **4.4** |
| Antimony | 7440-36-0 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Zinc | 7440-66-6 | 0.5 | mg/kg | **84.3** | **69.0** | **87.2** | **85.7** | **57.6** |
| Vanadium | 7440-62-2 | 1 | mg/kg | **94** | **81** | **90** | **99** | **73** |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | |
| Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | <0.1 | **0.2** | <0.1 | <0.1 | <0.1 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 20 | mg/kg | **1080** | **350** | **1260** | **870** | **140** |
| **EK062: Total Nitrogen as N (TKN + NOx)** | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 20 | mg/kg | **1080** | **350** | **1260** | **870** | **140** |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | |
| Total Phosphorus as P | ---- | 2 | mg/kg | **613** | **478** | **717** | **482** | **589** |
| **EP004: Organic Matter** | | | | | | | | |
| Organic Matter | ---- | 0.5 | % | **3.1** | **0.8** | **2.9** | **5.0** | **0.6** |
| Total Organic Carbon | ---- | 0.5 | % | **1.8** | <0.5 | **1.7** | **2.9** | <0.5 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | |
| Naphthalene | 91-20-3 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Acenaphthylene | 208-96-8 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Acenaphthene | 83-32-9 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Fluorene | 86-73-7 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Phenanthrene | 85-01-8 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Anthracene | 120-12-7 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Fluoranthene | 206-44-0 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Pyrene | 129-00-0 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M1 | M7 | 18 | 19 | 21 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jun-2016 12:00 | 26-Jun-2016 13:15 | 27-Jun-2016 09:00 | 27-Jun-2016 13:30 | 28-Jun-2016 09:00 |
| Compound | CAS Number | LOR | Unit | | EB1617705-011 | EB1617705-012 | EB1617705-013 | EB1617705-014 | EB1617705-015 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Chrysene | 218-01-9 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (half LOR) | ---- | 0.5 | mg/kg | | **0.6** | **0.6** | **0.6** | **0.6** | **0.6** |
| ^ Benzo(a)pyrene TEQ (LOR) | ---- | 0.5 | mg/kg | | **1.2** | **1.2** | **1.2** | **1.2** | **1.2** |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 10 | mg/kg | | <10 | <10 | <10 | <10 | <10 |
| C10 - C14 Fraction | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| C15 - C28 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| C29 - C36 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 10 | mg/kg | | <10 | <10 | <10 | <10 | <10 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 10 | mg/kg | | <10 | <10 | <10 | <10 | <10 |
| >C10 - C16 Fraction | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| >C16 - C34 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 0.2 | mg/kg | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Toluene | 108-88-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | 100-41-4 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ortho-Xylene | 95-47-6 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M1 | M7 | 18 | 19 | 21 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jun-2016 12:00 | 26-Jun-2016 13:15 | 27-Jun-2016 09:00 | 27-Jun-2016 13:30 | 28-Jun-2016 09:00 |
| Compound | CAS Number | LOR | Unit | | EB1617705-011 | EB1617705-012 | EB1617705-013 | EB1617705-014 | EB1617705-015 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080: BTEXN - Continued** | | | | | | | | | |
| ^ **Sum of BTEX** | ---- | 0.2 | mg/kg | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| ^ **Total Xylenes** | 1330-20-7 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Naphthalene** | 91-20-3 | 1 | mg/kg | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 0.5 | % | | **114** | **118** | **119** | **113** | **104** |
| **Anthracene-d10** | 1719-06-8 | 0.5 | % | | **77.9** | **82.2** | **86.7** | **78.9** | **74.3** |
| **4-Terphenyl-d14** | 1718-51-0 | 0.5 | % | | **107** | **107** | **106** | **102** | **94.3** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 0.2 | % | | **91.0** | **99.4** | **94.8** | **99.0** | **101** |
| **Toluene-D8** | 2037-26-5 | 0.2 | % | | **88.5** | **101** | **91.3** | **97.7** | **100** |
| **4-Bromofluorobenzene** | 460-00-4 | 0.2 | % | | **106** | **124** | **110** | **122** | **122** |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Client sample ID | 22 | 20 | 23b | 24b | DUP1 |
|---|---|---|---|---|---|---|---|---|
| | | | Client sampling date / time | 28-Jun-2016 14:00 | 29-Jun-2016 09:00 | 02-Jul-2016 09:00 | 02-Jul-2016 14:00 | [02-Jul-2016] |
| Compound | CAS Number | LOR | Unit | EB1617705-016 | EB1617705-017 | EB1617705-018 | EB1617705-019 | EB1617705-020 |
| | | | | Result | Result | Result | Result | Result |
| **EA055: Moisture Content** | | | | | | | | |
| Moisture Content (dried @ 103°C) | ---- | 1 | % | 54.2 | 29.0 | 54.6 | 38.8 | 53.9 |
| **EA150: Particle Sizing** | | | | | | | | |
| +75µm | ---- | 1 | % | 3 | 96 | 1 | 59 | ---- |
| +150µm | ---- | 1 | % | <1 | 75 | <1 | 58 | ---- |
| +300µm | ---- | 1 | % | <1 | 6 | <1 | 19 | ---- |
| +425µm | ---- | 1 | % | <1 | 1 | <1 | 2 | ---- |
| +600µm | ---- | 1 | % | <1 | <1 | <1 | <1 | ---- |
| +1180µm | ---- | 1 | % | <1 | <1 | <1 | <1 | ---- |
| +2.36mm | ---- | 1 | % | <1 | <1 | <1 | <1 | ---- |
| +4.75mm | ---- | 1 | % | <1 | <1 | <1 | <1 | ---- |
| +9.5mm | ---- | 1 | % | <1 | <1 | <1 | <1 | ---- |
| +19.0mm | ---- | 1 | % | <1 | <1 | <1 | <1 | ---- |
| +37.5mm | ---- | 1 | % | <1 | <1 | <1 | <1 | ---- |
| +75.0mm | ---- | 1 | % | <1 | <1 | <1 | <1 | ---- |
| **EA150: Soil Classification based on Particle Size** | | | | | | | | |
| Clay (<2 µm) | ---- | 1 | % | 23 | 1 | 24 | 12 | ---- |
| Silt (2-60 µm) | ---- | 1 | % | 71 | 2 | 74 | 27 | ---- |
| Sand (0.06-2.00 mm) | ---- | 1 | % | 6 | 97 | 2 | 61 | ---- |
| Gravel (>2mm) | ---- | 1 | % | <1 | <1 | <1 | <1 | ---- |
| Cobbles (>6cm) | ---- | 1 | % | <1 | <1 | <1 | <1 | ---- |
| **EA152: Soil Particle Density** | | | | | | | | |
| Soil Particle Density (Clay/Silt/Sand) | ---- | 0.01 | g/cm3 | 2.67 | 2.72 | 2.66 | 2.69 | ---- |
| **EG005T: Total Metals by ICP-AES** | | | | | | | | |
| Aluminium | 7429-90-5 | 50 | mg/kg | 33800 | 21800 | 33500 | 26000 | 35100 |
| Arsenic | 7440-38-2 | 5 | mg/kg | 9 | 6 | 8 | <5 | 10 |
| Barium | 7440-39-3 | 10 | mg/kg | 80 | 10 | 70 | 100 | 20 |
| Iron | 7439-89-6 | 50 | mg/kg | 56900 | 37100 | 56100 | 47700 | 53300 |
| Strontium | 7440-24-6 | 2 | mg/kg | 68 | 22 | 62 | 70 | 36 |
| Tin | 7440-31-5 | 5 | mg/kg | <5 | <5 | <5 | <5 | <5 |
| **EG020T: Total Metals by ICP-MS** | | | | | | | | |
| Selenium | 7782-49-2 | 1 | mg/kg | <1 | <1 | <1 | <1 | <1 |
| Silver | 7440-22-4 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | 0.1 |
| Thallium | 7440-28-0 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Beryllium | 7440-41-7 | 0.1 | mg/kg | 0.7 | 0.3 | 0.7 | 0.6 | 0.6 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Client sample ID | 22 | 20 | 23b | 24b | DUP1 |
|---|---|---|---|---|---|---|---|---|
| | | | Client sampling date / time | 28-Jun-2016 14:00 | 29-Jun-2016 09:00 | 02-Jul-2016 09:00 | 02-Jul-2016 14:00 | [02-Jul-2016] |
| Compound | CAS Number | LOR | Unit | EB1617705-016 | EB1617705-017 | EB1617705-018 | EB1617705-019 | EB1617705-020 |
| | | | | Result | Result | Result | Result | Result |
| **EG020T: Total Metals by ICP-MS - Continued** | | | | | | | | |
| Cadmium | 7440-43-9 | 0.1 | mg/kg | **0.1** | <0.1 | <0.1 | <0.1 | <0.1 |
| Cobalt | 7440-48-4 | 0.1 | mg/kg | **22.4** | **18.0** | **21.0** | **21.5** | **20.6** |
| Chromium | 7440-47-3 | 0.1 | mg/kg | **49.9** | **39.1** | **48.4** | **42.3** | **63.8** |
| Copper | 7440-50-8 | 0.1 | mg/kg | **58.6** | **12.8** | **50.0** | **34.6** | **48.6** |
| Manganese | 7439-96-5 | 0.1 | mg/kg | **800** | **363** | **862** | **683** | **789** |
| Molybdenum | 7439-98-7 | 0.1 | mg/kg | **0.4** | **0.1** | **0.3** | **0.2** | **0.4** |
| Nickel | 7440-02-0 | 0.1 | mg/kg | **45.2** | **32.0** | **44.0** | **42.9** | **46.4** |
| Lead | 7439-92-1 | 0.1 | mg/kg | **10.8** | **4.0** | **10.2** | **8.3** | **8.1** |
| Antimony | 7440-36-0 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Zinc | 7440-66-6 | 0.5 | mg/kg | **97.0** | **61.1** | **94.9** | **79.4** | **86.0** |
| Vanadium | 7440-62-2 | 1 | mg/kg | **104** | **62** | **99** | **93** | **102** |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | |
| Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 20 | mg/kg | **1530** | **210** | **1560** | **780** | **1320** |
| **EK062: Total Nitrogen as N (TKN + NOx)** | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 20 | mg/kg | **1530** | **210** | **1560** | **780** | **1320** |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | |
| Total Phosphorus as P | ---- | 2 | mg/kg | **835** | **511** | **908** | **870** | **662** |
| **EP004: Organic Matter** | | | | | | | | |
| Organic Matter | ---- | 0.5 | % | **4.0** | **0.6** | **3.5** | **1.4** | **4.2** |
| Total Organic Carbon | ---- | 0.5 | % | **2.3** | <0.5 | **2.0** | **0.8** | **2.4** |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | |
| Naphthalene | 91-20-3 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Acenaphthylene | 208-96-8 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Acenaphthene | 83-32-9 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Fluorene | 86-73-7 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Phenanthrene | 85-01-8 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Anthracene | 120-12-7 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Fluoranthene | 206-44-0 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Pyrene | 129-00-0 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | 22 | 20 | 23b | 24b | DUP1 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 28-Jun-2016 14:00 | 29-Jun-2016 09:00 | 02-Jul-2016 09:00 | 02-Jul-2016 14:00 | [02-Jul-2016] |
| Compound | CAS Number | LOR | Unit | | EB1617705-016 | EB1617705-017 | EB1617705-018 | EB1617705-019 | EB1617705-020 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Chrysene | 218-01-9 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (half LOR) | ---- | 0.5 | mg/kg | | **0.6** | **0.6** | **0.6** | **0.6** | **0.6** |
| ^ Benzo(a)pyrene TEQ (LOR) | ---- | 0.5 | mg/kg | | **1.2** | **1.2** | **1.2** | **1.2** | **1.2** |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 10 | mg/kg | | <10 | <10 | <10 | <10 | <10 |
| C10 - C14 Fraction | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| C15 - C28 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| C29 - C36 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 10 | mg/kg | | <10 | <10 | <10 | <10 | <10 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 10 | mg/kg | | <10 | <10 | <10 | <10 | <10 |
| >C10 - C16 Fraction | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| >C16 - C34 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 0.2 | mg/kg | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Toluene | 108-88-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | 100-41-4 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ortho-Xylene | 95-47-6 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | 22 | 20 | 23b | 24b | DUP1 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 28-Jun-2016 14:00 | 29-Jun-2016 09:00 | 02-Jul-2016 09:00 | 02-Jul-2016 14:00 | [02-Jul-2016] |
| Compound | CAS Number | LOR | Unit | | EB1617705-016 | EB1617705-017 | EB1617705-018 | EB1617705-019 | EB1617705-020 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080: BTEXN - Continued** | | | | | | | | | |
| ^ **Sum of BTEX** | ---- | 0.2 | mg/kg | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| ^ **Total Xylenes** | 1330-20-7 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Naphthalene** | 91-20-3 | 1 | mg/kg | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 0.5 | % | | **92.0** | **121** | **102** | **113** | **114** |
| **Anthracene-d10** | 1719-06-8 | 0.5 | % | | **70.2** | **88.9** | **74.1** | **75.3** | **78.7** |
| **4-Terphenyl-d14** | 1718-51-0 | 0.5 | % | | **83.0** | **109** | **98.6** | **100** | **100** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 0.2 | % | | **93.8** | **105** | **91.9** | **94.0** | **81.8** |
| **Toluene-D8** | 2037-26-5 | 0.2 | % | | **94.7** | **98.5** | **88.6** | **89.7** | **79.7** |
| **4-Bromofluorobenzene** | 460-00-4 | 0.2 | % | | **117** | **119** | **110** | **107** | **95.8** |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Client sample ID | DUP2 | TRIP1 | TRIP BLANK | M25 | M31 |
|---|---|---|---|---|---|---|---|---|
| | | | Client sampling date / time | [02-Jul-2016] | [02-Jul-2016] | [02-Jul-2016] | 04-Jul-2016 14:30 | 05-Jul-2016 12:00 |
| Compound | CAS Number | LOR | Unit | EB1617705-021 | EB1617705-022 | EB1617705-023 | EB1617705-024 | EB1617705-025 |
| | | | | Result | Result | Result | Result | Result |
| **EA055: Moisture Content** | | | | | | | | |
| Moisture Content (dried @ 103°C) | ---- | 1 | % | 29.7 | 43.4 | <1.0 | 64.2 | 67.9 |
| **EA150: Particle Sizing** | | | | | | | | |
| +75µm | ---- | 1 | % | ---- | ---- | ---- | ---- | <1 |
| +150µm | ---- | 1 | % | ---- | ---- | ---- | ---- | <1 |
| +300µm | ---- | 1 | % | ---- | ---- | ---- | ---- | <1 |
| +425µm | ---- | 1 | % | ---- | ---- | ---- | ---- | <1 |
| +600µm | ---- | 1 | % | ---- | ---- | ---- | ---- | <1 |
| +1180µm | ---- | 1 | % | ---- | ---- | ---- | ---- | <1 |
| +2.36mm | ---- | 1 | % | ---- | ---- | ---- | ---- | <1 |
| +4.75mm | ---- | 1 | % | ---- | ---- | ---- | ---- | <1 |
| +9.5mm | ---- | 1 | % | ---- | ---- | ---- | ---- | <1 |
| +19.0mm | ---- | 1 | % | ---- | ---- | ---- | ---- | <1 |
| +37.5mm | ---- | 1 | % | ---- | ---- | ---- | ---- | <1 |
| +75.0mm | ---- | 1 | % | ---- | ---- | ---- | ---- | <1 |
| **EA150: Soil Classification based on Particle Size** | | | | | | | | |
| Clay (<2 µm) | ---- | 1 | % | ---- | ---- | ---- | ---- | 52 |
| Silt (2-60 µm) | ---- | 1 | % | ---- | ---- | ---- | ---- | 43 |
| Sand (0.06-2.00 mm) | ---- | 1 | % | ---- | ---- | ---- | ---- | 5 |
| Gravel (>2mm) | ---- | 1 | % | ---- | ---- | ---- | ---- | <1 |
| Cobbles (>6cm) | ---- | 1 | % | ---- | ---- | ---- | ---- | <1 |
| **EA152: Soil Particle Density** | | | | | | | | |
| Soil Particle Density (Clay/Silt/Sand) | ---- | 0.01 | g/cm3 | ---- | ---- | ---- | ---- | 2.67 |
| **EG005T: Total Metals by ICP-AES** | | | | | | | | |
| Aluminium | 7429-90-5 | 50 | mg/kg | 25200 | 33100 | 190 | 39300 | 41000 |
| Arsenic | 7440-38-2 | 5 | mg/kg | 6 | 7 | <5 | 11 | 8 |
| Barium | 7440-39-3 | 10 | mg/kg | 10 | 20 | <10 | 10 | 20 |
| Iron | 7439-89-6 | 50 | mg/kg | 43400 | 48600 | 100 | 55300 | 56400 |
| Strontium | 7440-24-6 | 2 | mg/kg | 18 | 30 | <2 | 50 | 74 |
| Tin | 7440-31-5 | 5 | mg/kg | <5 | <5 | <5 | <5 | <5 |
| **EG020T: Total Metals by ICP-MS** | | | | | | | | |
| Selenium | 7782-49-2 | 1 | mg/kg | <1 | <1 | <1 | <1 | <1 |
| Silver | 7440-22-4 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Thallium | 7440-28-0 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Beryllium | 7440-41-7 | 0.1 | mg/kg | 0.4 | 0.5 | <0.1 | 0.8 | 0.8 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Client sample ID | DUP2 | TRIP1 | TRIP BLANK | M25 | M31 |
|---|---|---|---|---|---|---|---|---|
| | | | Client sampling date / time | [02-Jul-2016] | [02-Jul-2016] | [02-Jul-2016] | 04-Jul-2016 14:30 | 05-Jul-2016 12:00 |
| Compound | CAS Number | LOR | Unit | EB1617705-021 | EB1617705-022 | EB1617705-023 | EB1617705-024 | EB1617705-025 |
| | | | | Result | Result | Result | Result | Result |
| **EG020T: Total Metals by ICP-MS - Continued** | | | | | | | | |
| Cadmium | 7440-43-9 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Cobalt | 7440-48-4 | 0.1 | mg/kg | **17.5** | **20.1** | <0.1 | **20.0** | **18.8** |
| Chromium | 7440-47-3 | 0.1 | mg/kg | **49.3** | **57.6** | **0.3** | **59.2** | **58.3** |
| Copper | 7440-50-8 | 0.1 | mg/kg | **18.1** | **36.4** | **0.2** | **46.4** | **33.7** |
| Manganese | 7439-96-5 | 0.1 | mg/kg | **556** | **657** | **0.2** | **698** | **756** |
| Molybdenum | 7439-98-7 | 0.1 | mg/kg | **0.1** | **0.2** | <0.1 | **0.4** | **0.3** |
| Nickel | 7440-02-0 | 0.1 | mg/kg | **34.8** | **41.5** | <0.1 | **47.4** | **50.0** |
| Lead | 7439-92-1 | 0.1 | mg/kg | **6.6** | **7.1** | <0.1 | **11.4** | **12.5** |
| Antimony | 7440-36-0 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | **0.1** | **0.2** |
| Zinc | 7440-66-6 | 0.5 | mg/kg | **70.7** | **79.7** | <0.5 | **97.2** | **97.4** |
| Vanadium | 7440-62-2 | 1 | mg/kg | **83** | **91** | <1 | **96** | **88** |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | |
| Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 20 | mg/kg | **290** | **820** | <20 | **1600** | **1560** |
| **EK062: Total Nitrogen as N (TKN + NOx)** | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 20 | mg/kg | **290** | **820** | <20 | **1600** | **1560** |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | |
| Total Phosphorus as P | ---- | 2 | mg/kg | **546** | **681** | <2 | **804** | **869** |
| **EP004: Organic Matter** | | | | | | | | |
| Organic Matter | ---- | 0.5 | % | **0.5** | **2.4** | <0.5 | **4.0** | **2.7** |
| Total Organic Carbon | ---- | 0.5 | % | <0.5 | **1.4** | <0.5 | **2.3** | **1.5** |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | |
| Naphthalene | 91-20-3 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Acenaphthylene | 208-96-8 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Acenaphthene | 83-32-9 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Fluorene | 86-73-7 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Phenanthrene | 85-01-8 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Anthracene | 120-12-7 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Fluoranthene | 206-44-0 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Pyrene | 129-00-0 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | DUP2 | TRIP1 | TRIP BLANK | M25 | M31 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | [02-Jul-2016] | [02-Jul-2016] | [02-Jul-2016] | 04-Jul-2016 14:30 | 05-Jul-2016 12:00 |
| Compound | CAS Number | LOR | Unit | | EB1617705-021 | EB1617705-022 | EB1617705-023 | EB1617705-024 | EB1617705-025 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Chrysene | 218-01-9 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (half LOR) | ---- | 0.5 | mg/kg | | **0.6** | **0.6** | **0.6** | **0.6** | **0.6** |
| ^ Benzo(a)pyrene TEQ (LOR) | ---- | 0.5 | mg/kg | | **1.2** | **1.2** | **1.2** | **1.2** | **1.2** |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 10 | mg/kg | | <10 | <10 | <10 | <10 | <10 |
| C10 - C14 Fraction | ---- | 50 | mg/kg | | <50 | <50 | <50 | <70 | <70 |
| C15 - C28 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| C29 - C36 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 10 | mg/kg | | <10 | <10 | <10 | <10 | <10 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 10 | mg/kg | | <10 | <10 | <10 | <10 | <10 |
| >C10 - C16 Fraction | ---- | 50 | mg/kg | | <50 | <50 | <50 | <60 | <50 |
| >C16 - C34 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | mg/kg | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 50 | mg/kg | | <50 | <50 | <50 | <50 | <50 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | ---- |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 0.2 | mg/kg | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Toluene | 108-88-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | 100-41-4 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ortho-Xylene | 95-47-6 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | DUP2 | TRIP1 | TRIP BLANK | M25 | M31 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | [02-Jul-2016] | [02-Jul-2016] | [02-Jul-2016] | 04-Jul-2016 14:30 | 05-Jul-2016 12:00 |
| Compound | CAS Number | LOR | Unit | | EB1617705-021 | EB1617705-022 | EB1617705-023 | EB1617705-024 | EB1617705-025 |
| | | | | | Result | Result | Result | Result | Result |
| **EP080: BTEXN - Continued** | | | | | | | | | |
| ^ **Sum of BTEX** | ---- | 0.2 | mg/kg | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| ^ **Total Xylenes** | 1330-20-7 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Naphthalene** | 91-20-3 | 1 | mg/kg | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 0.5 | % | | **126** | **119** | **122** | **121** | **123** |
| **Anthracene-d10** | 1719-06-8 | 0.5 | % | | **96.4** | **90.8** | **93.4** | **91.8** | **92.7** |
| **4-Terphenyl-d14** | 1718-51-0 | 0.5 | % | | **131** | **124** | **126** | **126** | **128** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 0.2 | % | | **80.1** | **79.5** | **93.7** | **76.1** | **74.2** |
| **Toluene-D8** | 2037-26-5 | 0.2 | % | | **78.9** | **77.4** | **85.8** | **76.9** | **71.9** |
| **4-Bromofluorobenzene** | 460-00-4 | 0.2 | % | | **80.9** | **77.0** | **86.6** | **74.5** | **71.4** |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M37 | M43 | ---- | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 05-Jul-2016 17:00 | [06-Jul-2016] | ---- | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1617705-026 | EB1617705-027 | -------- | -------- | -------- |
| | | | | | Result | Result | ---- | ---- | ---- |
| **EA055: Moisture Content** | | | | | | | | | |
| Moisture Content (dried @ 103°C) | ---- | 1 | % | | 43.4 | 61.8 | ---- | ---- | ---- |
| **EA150: Particle Sizing** | | | | | | | | | |
| +75µm | ---- | 1 | % | | 64 | 2 | ---- | ---- | ---- |
| +150µm | ---- | 1 | % | | 55 | <1 | ---- | ---- | ---- |
| +300µm | ---- | 1 | % | | 21 | <1 | ---- | ---- | ---- |
| +425µm | ---- | 1 | % | | 14 | <1 | ---- | ---- | ---- |
| +600µm | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| +1180µm | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| +2.36mm | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| +4.75mm | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| +9.5mm | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| +19.0mm | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| +37.5mm | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| +75.0mm | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| **EA150: Soil Classification based on Particle Size** | | | | | | | | | |
| Clay (<2 µm) | ---- | 1 | % | | 22 | 41 | ---- | ---- | ---- |
| Silt (2-60 µm) | ---- | 1 | % | | 12 | 55 | ---- | ---- | ---- |
| Sand (0.06-2.00 mm) | ---- | 1 | % | | 66 | 4 | ---- | ---- | ---- |
| Gravel (>2mm) | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| Cobbles (>6cm) | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| **EA152: Soil Particle Density** | | | | | | | | | |
| Soil Particle Density (Clay/Silt/Sand) | ---- | 0.01 | g/cm3 | | 2.69 | 2.71 | ---- | ---- | ---- |
| **EG005T: Total Metals by ICP-AES** | | | | | | | | | |
| Aluminium | 7429-90-5 | 50 | mg/kg | | 25200 | 35900 | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 5 | mg/kg | | 22 | 19 | ---- | ---- | ---- |
| Barium | 7440-39-3 | 10 | mg/kg | | 20 | 30 | ---- | ---- | ---- |
| Iron | 7439-89-6 | 50 | mg/kg | | 44000 | 52800 | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 2 | mg/kg | | 370 | 170 | ---- | ---- | ---- |
| Tin | 7440-31-5 | 5 | mg/kg | | <5 | <5 | ---- | ---- | ---- |
| **EG020T: Total Metals by ICP-MS** | | | | | | | | | |
| Selenium | 7782-49-2 | 1 | mg/kg | | <1 | <1 | ---- | ---- | ---- |
| Silver | 7440-22-4 | 0.1 | mg/kg | | <0.1 | <0.1 | ---- | ---- | ---- |
| Thallium | 7440-28-0 | 0.1 | mg/kg | | <0.1 | <0.1 | ---- | ---- | ---- |
| Beryllium | 7440-41-7 | 0.1 | mg/kg | | 0.7 | 0.7 | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Client sample ID | M37 | M43 | ---- | ---- | ---- |
|---|---|---|---|---|---|---|---|---|
| | | | Client sampling date / time | 05-Jul-2016 17:00 | [06-Jul-2016] | ---- | ---- | ---- |
| Compound | CAS Number | LOR | Unit | EB1617705-026 | EB1617705-027 | -------- | -------- | -------- |
| | | | | Result | Result | ---- | ---- | ---- |
| **EG020T: Total Metals by ICP-MS - Continued** | | | | | | | | |
| Cadmium | 7440-43-9 | 0.1 | mg/kg | <0.1 | <0.1 | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | mg/kg | **14.4** | **17.6** | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.1 | mg/kg | **49.8** | **61.2** | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.1 | mg/kg | **19.0** | **35.6** | ---- | ---- | ---- |
| Manganese | 7439-96-5 | 0.1 | mg/kg | **675** | **1030** | ---- | ---- | ---- |
| Molybdenum | 7439-98-7 | 0.1 | mg/kg | **0.3** | **0.4** | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.1 | mg/kg | **38.2** | **44.7** | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | mg/kg | **8.7** | **15.3** | ---- | ---- | ---- |
| Antimony | 7440-36-0 | 0.1 | mg/kg | **0.3** | **0.4** | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 0.5 | mg/kg | **62.2** | **87.5** | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 1 | mg/kg | **61** | **78** | ---- | ---- | ---- |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | **0.1** | ---- | ---- | ---- |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | |
| Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | <0.1 | <0.1 | ---- | ---- | ---- |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 20 | mg/kg | **720** | **1650** | ---- | ---- | ---- |
| **EK062: Total Nitrogen as N (TKN + NOx)** | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 20 | mg/kg | **720** | **1650** | ---- | ---- | ---- |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | |
| Total Phosphorus as P | ---- | 2 | mg/kg | **697** | **887** | ---- | ---- | ---- |
| **EP004: Organic Matter** | | | | | | | | |
| Organic Matter | ---- | 0.5 | % | **1.1** | **1.0** | ---- | ---- | ---- |
| Total Organic Carbon | ---- | 0.5 | % | **0.6** | **0.6** | ---- | ---- | ---- |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | |
| Naphthalene | 91-20-3 | 0.5 | mg/kg | <0.5 | <0.5 | ---- | ---- | ---- |
| Acenaphthylene | 208-96-8 | 0.5 | mg/kg | <0.5 | <0.5 | ---- | ---- | ---- |
| Acenaphthene | 83-32-9 | 0.5 | mg/kg | <0.5 | <0.5 | ---- | ---- | ---- |
| Fluorene | 86-73-7 | 0.5 | mg/kg | <0.5 | <0.5 | ---- | ---- | ---- |
| Phenanthrene | 85-01-8 | 0.5 | mg/kg | <0.5 | <0.5 | ---- | ---- | ---- |
| Anthracene | 120-12-7 | 0.5 | mg/kg | <0.5 | <0.5 | ---- | ---- | ---- |
| Fluoranthene | 206-44-0 | 0.5 | mg/kg | <0.5 | <0.5 | ---- | ---- | ---- |
| Pyrene | 129-00-0 | 0.5 | mg/kg | <0.5 | <0.5 | ---- | ---- | ---- |
| Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | <0.5 | <0.5 | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M37 | M43 | ---- | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 05-Jul-2016 17:00 | [06-Jul-2016] | ---- | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1617705-026 | EB1617705-027 | -------- | -------- | -------- |
| | | | | | Result | Result | ---- | ---- | ---- |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| **Chrysene** | 218-01-9 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| **Benzo(b+j)fluoranthene** | 205-99-2 205-82-3 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| **Benzo(k)fluoranthene** | 207-08-9 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| **Benzo(a)pyrene** | 50-32-8 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| **Indeno(1.2.3.cd)pyrene** | 193-39-5 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| **Dibenz(a.h)anthracene** | 53-70-3 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| **Benzo(g.h.i)perylene** | 191-24-2 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| ^ **Sum of polycyclic aromatic hydrocarbons** | ---- | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| ^ **Benzo(a)pyrene TEQ (zero)** | ---- | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| ^ **Benzo(a)pyrene TEQ (half LOR)** | ---- | 0.5 | mg/kg | | **0.6** | **0.6** | ---- | ---- | ---- |
| ^ **Benzo(a)pyrene TEQ (LOR)** | ---- | 0.5 | mg/kg | | **1.2** | **1.2** | ---- | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| **C6 - C9 Fraction** | ---- | 10 | mg/kg | | <10 | <10 | ---- | ---- | ---- |
| **C10 - C14 Fraction** | ---- | 50 | mg/kg | | <50 | <50 | ---- | ---- | ---- |
| **C15 - C28 Fraction** | ---- | 100 | mg/kg | | <100 | <100 | ---- | ---- | ---- |
| **C29 - C36 Fraction** | ---- | 100 | mg/kg | | <100 | <100 | ---- | ---- | ---- |
| ^ **C10 - C36 Fraction (sum)** | ---- | 50 | mg/kg | | <50 | <50 | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| **C6 - C10 Fraction** | C6_C10 | 10 | mg/kg | | <10 | <10 | ---- | ---- | ---- |
| ^ **C6 - C10 Fraction minus BTEX (F1)** | C6_C10-BTEX | 10 | mg/kg | | <10 | <10 | ---- | ---- | ---- |
| **>C10 - C16 Fraction** | ---- | 50 | mg/kg | | <50 | <50 | ---- | ---- | ---- |
| **>C16 - C34 Fraction** | ---- | 100 | mg/kg | | <100 | <100 | ---- | ---- | ---- |
| **>C34 - C40 Fraction** | ---- | 100 | mg/kg | | <100 | <100 | ---- | ---- | ---- |
| ^ **>C10 - C40 Fraction (sum)** | ---- | 50 | mg/kg | | <50 | <50 | ---- | ---- | ---- |
| ^ **>C10 - C16 Fraction minus Naphthalene (F2)** | ---- | 50 | mg/kg | | <50 | <50 | ---- | ---- | ---- |
| ^ **>C10 - C16 Fraction minus Naphthalene (F2)** | ---- | 50 | mg/kg | | ---- | ---- | ---- | ---- | ---- |
| **EP080: BTEXN** | | | | | | | | | |
| **Benzene** | 71-43-2 | 0.2 | mg/kg | | <0.2 | <0.2 | ---- | ---- | ---- |
| **Toluene** | 108-88-3 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| **Ethylbenzene** | 100-41-4 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| **meta- & para-Xylene** | 108-38-3 106-42-3 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| **ortho-Xylene** | 95-47-6 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M37 | M43 | ---- | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 05-Jul-2016 17:00 | [06-Jul-2016] | ---- | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1617705-026 | EB1617705-027 | -------- | -------- | -------- |
| | | | | | Result | Result | ---- | ---- | ---- |
| **EP080: BTEXN - Continued** | | | | | | | | | |
| ^ **Sum of BTEX** | ---- | 0.2 | mg/kg | | <0.2 | <0.2 | ---- | ---- | ---- |
| ^ **Total Xylenes** | 1330-20-7 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| **Naphthalene** | 91-20-3 | 1 | mg/kg | | <1 | <1 | ---- | ---- | ---- |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 0.5 | % | | **97.1** | **45.5** | ---- | ---- | ---- |
| **Anthracene-d10** | 1719-06-8 | 0.5 | % | | **90.8** | **84.2** | ---- | ---- | ---- |
| **4-Terphenyl-d14** | 1718-51-0 | 0.5 | % | | **126** | **116** | ---- | ---- | ---- |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 0.2 | % | | **75.3** | **70.6** | ---- | ---- | ---- |
| **Toluene-D8** | 2037-26-5 | 0.2 | % | | **73.3** | **63.9** | ---- | ---- | ---- |
| **4-Bromofluorobenzene** | 460-00-4 | 0.2 | % | | **71.4** | **63.2** | ---- | ---- | ---- |

## Surrogate Control Limits

| Sub-Matrix: **SOIL** | | Recovery Limits (%) | |
|---|---|---|---|
| *Compound* | *CAS Number* | *Low* | *High* |
| **EP075(SIM)T: PAH Surrogates** | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 34 | 157 |
| **Anthracene-d10** | 1719-06-8 | 37 | 153 |
| **4-Terphenyl-d14** | 1718-51-0 | 42 | 172 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 53 | 134 |
| **Toluene-D8** | 2037-26-5 | 60 | 131 |
| **4-Bromofluorobenzene** | 460-00-4 | 59 | 127 |

ALS Environmental

# QUALITY CONTROL REPORT

| | | | |
|---|---|---|---|
| **Work Order** | : **EB1617705** | Page | : 1 of 14 |
| Client | : **BMT WBM GROUP LTD** | Laboratory | : Environmental Division Brisbane |
| Contact | : MR JEREMY VISSER | Contact | : John Pickering |
| Address | : PO BOX 203 SPRING HILL BRISBANE QLD 4004 | Address | : 2 Byth Street Stafford QLD Australia 4053 |
| Telephone | : +61 07 3831 6744 | Telephone | : +61 7 3552 8634 |
| Project | : B21414 Elk | Date Samples Received | : 11-Jul-2016 |
| Order number | : ---- | Date Analysis Commenced | : 11-Jul-2016 |
| C-O-C number | : ---- | Issue Date | : 27-Jul-2016 |
| Sampler | : CONOR JONES, DANIEL MORAN | | |
| Site | : ---- | | |
| Quote number | : ---- | | |
| No. of samples received | : 31 | | |
| No. of samples analysed | : 27 | | |

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ISO/IEC 17025.

NATA
WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

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* |
|---|---|---|
| Kim McCabe | Senior Inorganic Chemist | Brisbane Inorganics, Stafford, QLD |
| Matt Frost | Senior Organic Chemist | Brisbane Organics, Stafford, QLD |
| Satishkumar Trivedi | Acid Sulfate Soils Supervisor | Brisbane Acid Sulphate Soils, Stafford, QLD |

## 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: **SOIL**

| | | | | Laboratory Duplicate (DUP) Report | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Laboratory sample ID* | *Client sample ID* | *Method: Compound* | *CAS Number* | *LOR* | *Unit* | *Original Result* | *Duplicate Result* | *RPD (%)* | *Recovery Limits (%)* |
| **EA055: Moisture Content (QC Lot: 514337)** | | | | | | | | | |
| EB1617705-001 | M6 | EA055-103: Moisture Content (dried @ 103°C) | ---- | 1 | % | 48.2 | 48.1 | 0.348 | 0% - 20% |
| EB1617705-011 | M1 | EA055-103: Moisture Content (dried @ 103°C) | ---- | 1 | % | 48.1 | 46.6 | 3.11 | 0% - 20% |
| **EA055: Moisture Content (QC Lot: 514846)** | | | | | | | | | |
| EB1617705-021 | DUP2 | EA055-103: Moisture Content (dried @ 103°C) | ---- | 1 | % | 29.7 | 30.4 | 2.34 | 0% - 20% |
| **EG005T: Total Metals by ICP-AES (QC Lot: 514842)** | | | | | | | | | |
| EB1617705-021 | DUP2 | EG005T: Barium | 7440-39-3 | 10 | mg/kg | 10 | 10 | 0.00 | No Limit |
| | | EG005T: Strontium | 7440-24-6 | 2 | mg/kg | 18 | 18 | 0.00 | No Limit |
| | | EG005T: Arsenic | 7440-38-2 | 5 | mg/kg | 6 | 5 | 17.6 | No Limit |
| | | EG005T: Tin | 7440-31-5 | 5 | mg/kg | <5 | <5 | 0.00 | No Limit |
| | | EG005T: Aluminium | 7429-90-5 | 50 | mg/kg | 25200 | 25100 | 0.377 | 0% - 20% |
| | | EG005T: Iron | 7439-89-6 | 50 | mg/kg | 43400 | 43300 | 0.174 | 0% - 20% |
| **EG005T: Total Metals by ICP-AES (QC Lot: 514937)** | | | | | | | | | |
| EB1617705-001 | M6 | EG005T: Barium | 7440-39-3 | 10 | mg/kg | 20 | 20 | 0.00 | No Limit |
| | | EG005T: Strontium | 7440-24-6 | 2 | mg/kg | 35 | 33 | 6.50 | 0% - 50% |
| | | EG005T: Arsenic | 7440-38-2 | 5 | mg/kg | 10 | 10 | 0.00 | No Limit |
| | | EG005T: Tin | 7440-31-5 | 5 | mg/kg | <5 | <5 | 0.00 | No Limit |
| | | EG005T: Aluminium | 7429-90-5 | 50 | mg/kg | 34400 | 32800 | 5.00 | 0% - 20% |
| | | EG005T: Iron | 7439-89-6 | 50 | mg/kg | 54300 | 50600 | 7.03 | 0% - 20% |
| EB1617705-011 | M1 | EG005T: Barium | 7440-39-3 | 10 | mg/kg | 20 | 20 | 0.00 | No Limit |
| | | EG005T: Strontium | 7440-24-6 | 2 | mg/kg | 35 | 35 | 0.00 | 0% - 50% |
| | | EG005T: Arsenic | 7440-38-2 | 5 | mg/kg | 11 | 10 | 10.0 | No Limit |
| | | EG005T: Tin | 7440-31-5 | 5 | mg/kg | <5 | <5 | 0.00 | No Limit |
| | | EG005T: Aluminium | 7429-90-5 | 50 | mg/kg | 32600 | 33600 | 3.24 | 0% - 20% |
| | | EG005T: Iron | 7439-89-6 | 50 | mg/kg | 51600 | 53800 | 4.30 | 0% - 20% |

Sub-Matrix: **SOIL**

| | | | | Laboratory Duplicate (DUP) Report | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Laboratory sample ID* | *Client sample ID* | *Method: Compound* | *CAS Number* | *LOR* | *Unit* | *Original Result* | *Duplicate Result* | *RPD (%)* | *Recovery Limits (%)* |
| **EG020T: Total Metals by ICP-MS (QC Lot: 514839)** | | | | | | | | | |
| EB1617705-021 | DUP2 | EG020X-T: Copper | 7440-50-8 | 0.1 | mg/kg | 18.1 | 18.0 | 0.654 | 0% - 20% |
| EB1617705-021 | DUP2 | EG020X-T: Beryllium | 7440-41-7 | 0.1 | mg/kg | 0.4 | 0.4 | 0.00 | No Limit |
| | | EG020X-T: Cobalt | 7440-48-4 | 0.1 | mg/kg | 17.5 | 17.8 | 1.44 | 0% - 20% |
| | | EG020X-T: Chromium | 7440-47-3 | 0.1 | mg/kg | 49.3 | 49.8 | 1.16 | 0% - 20% |
| | | EG020X-T: Manganese | 7439-96-5 | 0.1 | mg/kg | 556 | 554 | 0.239 | 0% - 20% |
| | | EG020X-T: Molybdenum | 7439-98-7 | 0.1 | mg/kg | 0.1 | 0.1 | 0.00 | No Limit |
| | | EG020X-T: Nickel | 7440-02-0 | 0.1 | mg/kg | 34.8 | 35.6 | 2.02 | 0% - 20% |
| | | EG020X-T: Lead | 7439-92-1 | 0.1 | mg/kg | 6.6 | 6.4 | 3.12 | 0% - 20% |
| | | EG020X-T: Antimony | 7440-36-0 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG020X-T: Zinc | 7440-66-6 | 0.5 | mg/kg | 70.7 | 72.2 | 2.14 | 0% - 20% |
| | | EG020X-T: Vanadium | 7440-62-2 | 1 | mg/kg | 83 | 84 | 1.51 | 0% - 20% |
| **EG020T: Total Metals by ICP-MS (QC Lot: 514840)** | | | | | | | | | |
| EB1617705-021 | DUP2 | EG020Y-T: Thallium | 7440-28-0 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG020Y-T: Cadmium | 7440-43-9 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG020Y-T: Selenium | 7782-49-2 | 1 | mg/kg | <1 | <1 | 0.00 | No Limit |
| **EG020T: Total Metals by ICP-MS (QC Lot: 514939)** | | | | | | | | | |
| EB1617705-001 | M6 | EG020X-T: Copper | 7440-50-8 | 0.1 | mg/kg | 39.4 | 40.2 | 2.14 | 0% - 20% |
| EB1617705-011 | M1 | EG020X-T: Copper | 7440-50-8 | 0.1 | mg/kg | 43.8 | 43.3 | 1.18 | 0% - 20% |
| EB1617705-001 | M6 | EG020X-T: Beryllium | 7440-41-7 | 0.1 | mg/kg | 0.6 | 0.6 | 0.00 | No Limit |
| | | EG020X-T: Cobalt | 7440-48-4 | 0.1 | mg/kg | 21.8 | 19.7 | 10.0 | 0% - 20% |
| | | EG020X-T: Chromium | 7440-47-3 | 0.1 | mg/kg | 63.7 | 58.8 | 7.99 | 0% - 20% |
| | | EG020X-T: Manganese | 7439-96-5 | 0.1 | mg/kg | 708 | 662 | 6.71 | 0% - 20% |
| | | EG020X-T: Molybdenum | 7439-98-7 | 0.1 | mg/kg | 0.3 | 0.3 | 0.00 | No Limit |
| | | EG020X-T: Nickel | 7440-02-0 | 0.1 | mg/kg | 47.6 | 43.2 | 9.70 | 0% - 20% |
| | | EG020X-T: Lead | 7439-92-1 | 0.1 | mg/kg | 8.4 | 7.9 | 6.09 | 0% - 20% |
| | | EG020X-T: Antimony | 7440-36-0 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG020X-T: Zinc | 7440-66-6 | 0.5 | mg/kg | 87.9 | 80.4 | 8.95 | 0% - 20% |
| | | EG020X-T: Vanadium | 7440-62-2 | 1 | mg/kg | 100 | 92 | 8.60 | 0% - 20% |
| EB1617705-011 | M1 | EG020X-T: Beryllium | 7440-41-7 | 0.1 | mg/kg | 0.6 | 0.6 | 0.00 | No Limit |
| | | EG020X-T: Cobalt | 7440-48-4 | 0.1 | mg/kg | 20.1 | 20.6 | 2.49 | 0% - 20% |
| | | EG020X-T: Chromium | 7440-47-3 | 0.1 | mg/kg | 59.1 | 60.1 | 1.81 | 0% - 20% |
| | | EG020X-T: Manganese | 7439-96-5 | 0.1 | mg/kg | 742 | 765 | 2.97 | 0% - 20% |
| | | EG020X-T: Molybdenum | 7439-98-7 | 0.1 | mg/kg | 0.3 | 0.3 | 0.00 | No Limit |
| | | EG020X-T: Nickel | 7440-02-0 | 0.1 | mg/kg | 44.8 | 45.4 | 1.48 | 0% - 20% |
| | | EG020X-T: Lead | 7439-92-1 | 0.1 | mg/kg | 8.0 | 8.3 | 3.48 | 0% - 20% |
| | | EG020X-T: Antimony | 7440-36-0 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG020X-T: Zinc | 7440-66-6 | 0.5 | mg/kg | 84.3 | 86.4 | 2.50 | 0% - 20% |
| | | EG020X-T: Vanadium | 7440-62-2 | 1 | mg/kg | 94 | 96 | 2.26 | 0% - 20% |
| **EG020T: Total Metals by ICP-MS (QC Lot: 514940)** | | | | | | | | | |
| EB1617705-001 | M6 | EG020Y-T: Thallium | 7440-28-0 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |

Sub-Matrix: **SOIL**

| | | | | Laboratory Duplicate (DUP) Report | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Laboratory sample ID* | *Client sample ID* | *Method: Compound* | *CAS Number* | *LOR* | *Unit* | *Original Result* | *Duplicate Result* | *RPD (%)* | *Recovery Limits (%)* |
| **EG020T: Total Metals by ICP-MS (QC Lot: 514940) - continued** | | | | | | | | | |
| EB1617705-001 | M6 | EG020Y-T: Cadmium | 7440-43-9 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG020Y-T: Selenium | 7782-49-2 | 1 | mg/kg | <1 | <1 | 0.00 | No Limit |
| EB1617705-011 | M1 | EG020Y-T: Thallium | 7440-28-0 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG020Y-T: Cadmium | 7440-43-9 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG020Y-T: Selenium | 7782-49-2 | 1 | mg/kg | <1 | <1 | 0.00 | No Limit |
| **EG020T: Total Metals by ICP-MS (QC Lot: 516045)** | | | | | | | | | |
| EB1617705-001 | M6 | EG020Z-T: Silver | 7440-22-4 | 0.1 | mg/kg | 0.1 | 0.2 | 0.00 | No Limit |
| EB1617705-011 | M1 | EG020Z-T: Silver | 7440-22-4 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| **EG020T: Total Metals by ICP-MS (QC Lot: 516046)** | | | | | | | | | |
| EB1617705-021 | DUP2 | EG020Z-T: Silver | 7440-22-4 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| **EG035T: Total Recoverable Mercury by FIMS (QC Lot: 514841)** | | | | | | | | | |
| EB1617705-021 | DUP2 | EG035T: Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| **EG035T: Total Recoverable Mercury by FIMS (QC Lot: 514938)** | | | | | | | | | |
| EB1617705-001 | M6 | EG035T: Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| EB1617705-011 | M1 | EG035T: Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 514945)** | | | | | | | | | |
| EB1617705-001 | M6 | EK059G: Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| EB1617705-011 | M1 | EK059G: Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | <0.1 | 0.1 | 0.00 | No Limit |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 514946)** | | | | | | | | | |
| EB1617705-021 | DUP2 | EK059G: Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 514942)** | | | | | | | | | |
| EB1617705-001 | M6 | EK061G: Total Kjeldahl Nitrogen as N | ---- | 20 | mg/kg | 930 | 960 | 3.30 | 0% - 20% |
| EB1617705-011 | M1 | EK061G: Total Kjeldahl Nitrogen as N | ---- | 20 | mg/kg | 1080 | 1100 | 1.85 | 0% - 20% |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 514943)** | | | | | | | | | |
| EB1617705-021 | DUP2 | EK061G: Total Kjeldahl Nitrogen as N | ---- | 20 | mg/kg | 290 | 300 | 0.00 | 0% - 50% |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 514941)** | | | | | | | | | |
| EB1617705-001 | M6 | EK067G: Total Phosphorus as P | ---- | 2 | mg/kg | 580 | 583 | 0.500 | 0% - 20% |
| EB1617705-011 | M1 | EK067G: Total Phosphorus as P | ---- | 2 | mg/kg | 613 | 658 | 7.20 | 0% - 20% |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 514944)** | | | | | | | | | |
| EB1617705-021 | DUP2 | EK067G: Total Phosphorus as P | ---- | 2 | mg/kg | 546 | 538 | 1.31 | 0% - 20% |
| **EP004: Organic Matter (QC Lot: 514477)** | | | | | | | | | |
| EB1617705-001 | M6 | EP004: Organic Matter | ---- | 0.5 | % | 3.1 | 3.1 | 0.00 | No Limit |
| | | EP004: Total Organic Carbon | ---- | 0.5 | % | 1.8 | 1.8 | 0.00 | No Limit |
| EB1617705-010 | M5 | EP004: Organic Matter | ---- | 0.5 | % | 2.5 | 2.5 | 0.00 | No Limit |
| | | EP004: Total Organic Carbon | ---- | 0.5 | % | 1.4 | 1.4 | 0.00 | No Limit |
| **EP004: Organic Matter (QC Lot: 514480)** | | | | | | | | | |
| EB1617705-021 | DUP2 | EP004: Organic Matter | ---- | 0.5 | % | 0.5 | 0.5 | 0.00 | No Limit |
| | | EP004: Total Organic Carbon | ---- | 0.5 | % | <0.5 | <0.5 | 0.00 | No Limit |

Sub-Matrix: **SOIL**

| | | | | 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: 514335)** | | | | | | | | | |
| EB1617705-001 | M6 | EP075(SIM): Naphthalene | 91-20-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Acenaphthylene | 208-96-8 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Acenaphthene | 83-32-9 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Fluorene | 86-73-7 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Phenanthrene | 85-01-8 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Anthracene | 120-12-7 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Fluoranthene | 206-44-0 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Pyrene | 129-00-0 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Chrysene | 218-01-9 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2<br>205-82-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| EB1617705-011 | M1 | EP075(SIM): Naphthalene | 91-20-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Acenaphthylene | 208-96-8 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Acenaphthene | 83-32-9 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Fluorene | 86-73-7 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Phenanthrene | 85-01-8 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Anthracene | 120-12-7 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Fluoranthene | 206-44-0 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Pyrene | 129-00-0 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Chrysene | 218-01-9 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2<br>205-82-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 514845)** | | | | | | | | | |
| EB1617705-021 | DUP2 | EP075(SIM): Naphthalene | 91-20-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Acenaphthylene | 208-96-8 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Acenaphthene | 83-32-9 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |

Sub-Matrix: **SOIL**

| | | | | 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: 514845) - continued** | | | | | | | | | |
| EB1617705-021 | DUP2 | EP075(SIM): Fluorene | 86-73-7 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Phenanthrene | 85-01-8 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Anthracene | 120-12-7 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Fluoranthene | 206-44-0 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Pyrene | 129-00-0 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Chrysene | 218-01-9 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2<br>205-82-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 514334)** | | | | | | | | | |
| EB1617705-001 | M6 | EP080: C6 - C9 Fraction | ---- | 10 | mg/kg | <10 | <10 | 0.00 | No Limit |
| EB1617705-011 | M1 | EP080: C6 - C9 Fraction | ---- | 10 | mg/kg | <10 | <10 | 0.00 | No Limit |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 514336)** | | | | | | | | | |
| EB1617705-001 | M6 | EP071: C15 - C28 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: C29 - C36 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: C10 - C14 Fraction | ---- | 50 | mg/kg | <50 | <50 | 0.00 | No Limit |
| EB1617705-011 | M1 | EP071: C15 - C28 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: C29 - C36 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: C10 - C14 Fraction | ---- | 50 | mg/kg | <50 | <50 | 0.00 | No Limit |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 514843)** | | | | | | | | | |
| EB1617705-021 | DUP2 | EP080: C6 - C9 Fraction | ---- | 10 | mg/kg | <10 | <10 | 0.00 | No Limit |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 514844)** | | | | | | | | | |
| EB1617705-021 | DUP2 | EP071: C15 - C28 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: C29 - C36 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: C10 - C14 Fraction | ---- | 50 | mg/kg | <50 | <50 | 0.00 | No Limit |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 514334)** | | | | | | | | | |
| EB1617705-001 | M6 | EP080: C6 - C10 Fraction | C6_C10 | 10 | mg/kg | <10 | <10 | 0.00 | No Limit |
| EB1617705-011 | M1 | EP080: C6 - C10 Fraction | C6_C10 | 10 | mg/kg | <10 | <10 | 0.00 | No Limit |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 514336)** | | | | | | | | | |
| EB1617705-001 | M6 | EP071: >C16 - C34 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: >C34 - C40 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: >C10 - C16 Fraction | ---- | 50 | mg/kg | <50 | <50 | 0.00 | No Limit |
| EB1617705-011 | M1 | EP071: >C16 - C34 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |

Sub-Matrix: **SOIL**

| | | | | Laboratory Duplicate (DUP) Report | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Laboratory sample ID* | *Client sample ID* | *Method: Compound* | *CAS Number* | *LOR* | *Unit* | *Original Result* | *Duplicate Result* | *RPD (%)* | *Recovery Limits (%)* |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 514336) - continued** | | | | | | | | | |
| EB1617705-011 | M1 | EP071: >C34 - C40 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: >C10 - C16 Fraction | ---- | 50 | mg/kg | <50 | <50 | 0.00 | No Limit |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 514843)** | | | | | | | | | |
| EB1617705-021 | DUP2 | EP080: C6 - C10 Fraction | C6_C10 | 10 | mg/kg | <10 | <10 | 0.00 | No Limit |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 514844)** | | | | | | | | | |
| EB1617705-021 | DUP2 | EP071: >C16 - C34 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: >C34 - C40 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: >C10 - C16 Fraction | ---- | 50 | mg/kg | <50 | <50 | 0.00 | No Limit |
| **EP080: BTEXN (QC Lot: 514334)** | | | | | | | | | |
| EB1617705-001 | M6 | EP080: Benzene | 71-43-2 | 0.2 | mg/kg | <0.2 | <0.2 | 0.00 | No Limit |
| | | EP080: Toluene | 108-88-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: Ethylbenzene | 100-41-4 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: ortho-Xylene | 95-47-6 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: Naphthalene | 91-20-3 | 1 | mg/kg | <1 | <1 | 0.00 | No Limit |
| EB1617705-011 | M1 | EP080: Benzene | 71-43-2 | 0.2 | mg/kg | <0.2 | <0.2 | 0.00 | No Limit |
| | | EP080: Toluene | 108-88-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: Ethylbenzene | 100-41-4 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: ortho-Xylene | 95-47-6 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: Naphthalene | 91-20-3 | 1 | mg/kg | <1 | <1 | 0.00 | No Limit |
| **EP080: BTEXN (QC Lot: 514843)** | | | | | | | | | |
| EB1617705-021 | DUP2 | EP080: Benzene | 71-43-2 | 0.2 | mg/kg | <0.2 | <0.2 | 0.00 | No Limit |
| | | EP080: Toluene | 108-88-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: Ethylbenzene | 100-41-4 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: ortho-Xylene | 95-47-6 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: Naphthalene | 91-20-3 | 1 | mg/kg | <1 | <1 | 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: **SOIL**

| | | | | 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 |
| **EG005T: Total Metals by ICP-AES (QCLot: 514842)** | | | | | | | | |
| EG005T: Aluminium | 7429-90-5 | 50 | mg/kg | <50 | ---- | ---- | ---- | ---- |
| EG005T: Arsenic | 7440-38-2 | 5 | mg/kg | <5 | 118.9 mg/kg | 99.7 | 84 | 123 |
| EG005T: Barium | 7440-39-3 | 10 | mg/kg | <10 | 105.1967 mg/kg | 94.8 | 89 | 129 |
| EG005T: Iron | 7439-89-6 | 50 | mg/kg | <50 | 34900 mg/kg | 103 | 70 | 120 |
| EG005T: Strontium | 7440-24-6 | 2 | mg/kg | <2 | 44.50816 mg/kg | 99.8 | 83 | 117 |
| EG005T: Tin | 7440-31-5 | 5 | mg/kg | <5 | 5.7 mg/kg | 87.2 | 75 | 130 |
| **EG005T: Total Metals by ICP-AES (QCLot: 514937)** | | | | | | | | |
| EG005T: Aluminium | 7429-90-5 | 50 | mg/kg | <50 | ---- | ---- | ---- | ---- |
| EG005T: Arsenic | 7440-38-2 | 5 | mg/kg | <5 | 118.9 mg/kg | 106 | 84 | 123 |
| EG005T: Barium | 7440-39-3 | 10 | mg/kg | <10 | 105.1967 mg/kg | 93.6 | 89 | 129 |
| EG005T: Iron | 7439-89-6 | 50 | mg/kg | <50 | 34900 mg/kg | 101 | 70 | 120 |
| EG005T: Strontium | 7440-24-6 | 2 | mg/kg | <2 | 44.50816 mg/kg | 88.2 | 83 | 117 |
| EG005T: Tin | 7440-31-5 | 5 | mg/kg | <5 | 5.7 mg/kg | 99.0 | 75 | 130 |
| **EG020T: Total Metals by ICP-MS (QCLot: 514839)** | | | | | | | | |
| EG020X-T: Beryllium | 7440-41-7 | 0.1 | mg/kg | <0.1 | 0.64 mg/kg | 117 | 79 | 130 |
| EG020X-T: Cobalt | 7440-48-4 | 0.1 | mg/kg | <0.1 | 11.6 mg/kg | 100 | 88 | 129 |
| EG020X-T: Chromium | 7440-47-3 | 0.1 | mg/kg | <0.1 | 22.9 mg/kg | 93.0 | 75 | 130 |
| EG020X-T: Copper | 7440-50-8 | 0.1 | mg/kg | <0.1 | 52.9 mg/kg | 103 | 84 | 120 |
| EG020X-T: Manganese | 7439-96-5 | 0.1 | mg/kg | <0.1 | 592 mg/kg | 103 | 86 | 130 |
| EG020X-T: Molybdenum | 7439-98-7 | 0.1 | mg/kg | <0.1 | 2 mg/kg | 98.3 | 82 | 118 |
| EG020X-T: Nickel | 7440-02-0 | 0.1 | mg/kg | <0.1 | 16.1 mg/kg | 95.0 | 89 | 127 |
| EG020X-T: Lead | 7439-92-1 | 0.1 | mg/kg | <0.1 | 66.3 mg/kg | # 124 | 85 | 117 |
| EG020X-T: Antimony | 7440-36-0 | 0.1 | mg/kg | <0.1 | ---- | ---- | ---- | ---- |
| EG020X-T: Zinc | 7440-66-6 | 0.5 | mg/kg | <0.5 | 187 mg/kg | 103 | 71 | 130 |
| EG020X-T: Vanadium | 7440-62-2 | 1 | mg/kg | <1 | 67.8 mg/kg | 104 | 86 | 130 |
| **EG020T: Total Metals by ICP-MS (QCLot: 514840)** | | | | | | | | |
| EG020Y-T: Selenium | 7782-49-2 | 1 | mg/kg | <1 | ---- | ---- | ---- | ---- |
| EG020Y-T: Thallium | 7440-28-0 | 0.1 | mg/kg | <0.1 | ---- | ---- | ---- | ---- |
| EG020Y-T: Cadmium | 7440-43-9 | 0.1 | mg/kg | <0.1 | 1.43 mg/kg | 105 | 81 | 121 |
| **EG020T: Total Metals by ICP-MS (QCLot: 514939)** | | | | | | | | |
| EG020X-T: Beryllium | 7440-41-7 | 0.1 | mg/kg | <0.1 | 0.64 mg/kg | 102 | 79 | 130 |
| EG020X-T: Cobalt | 7440-48-4 | 0.1 | mg/kg | <0.1 | 11.6 mg/kg | 103 | 88 | 129 |
| EG020X-T: Chromium | 7440-47-3 | 0.1 | mg/kg | <0.1 | 22.9 mg/kg | 95.8 | 75 | 130 |
| EG020X-T: Copper | 7440-50-8 | 0.1 | mg/kg | <0.1 | 52.9 mg/kg | 102 | 84 | 120 |

Sub-Matrix: **SOIL**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EG020T: Total Metals by ICP-MS (QCLot: 514939) - continued** | | | | | | | | |
| EG020X-T: Manganese | 7439-96-5 | 0.1 | mg/kg | # 0.1 | 592 mg/kg | 102 | 86 | 130 |
| EG020X-T: Molybdenum | 7439-98-7 | 0.1 | mg/kg | <0.1 | 2 mg/kg | 101 | 82 | 118 |
| EG020X-T: Nickel | 7440-02-0 | 0.1 | mg/kg | <0.1 | 16.1 mg/kg | 97.7 | 89 | 127 |
| EG020X-T: Lead | 7439-92-1 | 0.1 | mg/kg | <0.1 | 66.3 mg/kg | 102 | 85 | 117 |
| EG020X-T: Antimony | 7440-36-0 | 0.1 | mg/kg | <0.1 | ---- | ---- | ---- | ---- |
| EG020X-T: Zinc | 7440-66-6 | 0.5 | mg/kg | <0.5 | 187 mg/kg | 106 | 71 | 130 |
| EG020X-T: Vanadium | 7440-62-2 | 1 | mg/kg | <1 | 67.8 mg/kg | 105 | 86 | 130 |
| **EG020T: Total Metals by ICP-MS (QCLot: 514940)** | | | | | | | | |
| EG020Y-T: Selenium | 7782-49-2 | 1 | mg/kg | <1 | ---- | ---- | ---- | ---- |
| EG020Y-T: Thallium | 7440-28-0 | 0.1 | mg/kg | <0.1 | ---- | ---- | ---- | ---- |
| EG020Y-T: Cadmium | 7440-43-9 | 0.1 | mg/kg | <0.1 | 1.43 mg/kg | 98.0 | 81 | 121 |
| **EG020T: Total Metals by ICP-MS (QCLot: 516045)** | | | | | | | | |
| EG020Z-T: Silver | 7440-22-4 | 0.1 | mg/kg | <0.1 | 3.16 mg/kg | 92.7 | 72 | 120 |
| **EG020T: Total Metals by ICP-MS (QCLot: 516046)** | | | | | | | | |
| EG020Z-T: Silver | 7440-22-4 | 0.1 | mg/kg | <0.1 | 3.16 mg/kg | 92.7 | 72 | 120 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 514841)** | | | | | | | | |
| EG035T: Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | 0.09821 mg/kg | 122 | 78 | 122 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 514938)** | | | | | | | | |
| EG035T: Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | 0.09821 mg/kg | 110 | 78 | 122 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 514945)** | | | | | | | | |
| EK059G: Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | <0.1 | 2.5 mg/kg | 99.0 | 86 | 115 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 514946)** | | | | | | | | |
| EK059G: Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | <0.1 | 2.5 mg/kg | 96.9 | 86 | 115 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 514942)** | | | | | | | | |
| EK061G: Total Kjeldahl Nitrogen as N | ---- | 20 | mg/kg | <20 | 877 mg/kg | 92.0 | 70 | 110 |
| | | | | <20 | 3644 mg/kg | 75.4 | 70 | 110 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 514943)** | | | | | | | | |
| EK061G: Total Kjeldahl Nitrogen as N | ---- | 20 | mg/kg | <20 | 877 mg/kg | 91.9 | 70 | 110 |
| | | | | <20 | 3644 mg/kg | 74.3 | 70 | 110 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 514941)** | | | | | | | | |
| EK067G: Total Phosphorus as P | ---- | 2 | mg/kg | <2 | 766 mg/kg | 78.0 | 70 | 110 |
| | | | | <2 | 1200 mg/kg | 86.3 | 70 | 110 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 514944)** | | | | | | | | |
| EK067G: Total Phosphorus as P | ---- | 2 | mg/kg | <2 | 766 mg/kg | 82.3 | 70 | 110 |
| | | | | <2 | 1200 mg/kg | 94.3 | 70 | 110 |
| **EP004: Organic Matter (QCLot: 514477)** | | | | | | | | |
| EP004: Organic Matter | ---- | 0.5 | % | <0.5 | 2.3 % | 88.8 | 83 | 115 |

Sub-Matrix: **SOIL**

| 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 |
|---|---|---|---|---|---|---|---|---|
| **EP004: Organic Matter (QCLot: 514477) - continued** | | | | | | | | |
| EP004: Total Organic Carbon | ---- | 0.5 | % | <0.5 | 1.3 % | 88.7 | 85 | 115 |
| **EP004: Organic Matter (QCLot: 514480)** | | | | | | | | |
| EP004: Organic Matter | ---- | 0.5 | % | <0.5 | 2.3 % | 88.8 | 83 | 115 |
| EP004: Total Organic Carbon | ---- | 0.5 | % | <0.5 | 1.3 % | 88.7 | 85 | 115 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 514335)** | | | | | | | | |
| EP075(SIM): Naphthalene | 91-20-3 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 109 | 74 | 119 |
| EP075(SIM): Acenaphthylene | 208-96-8 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 89.5 | 74 | 118 |
| EP075(SIM): Acenaphthene | 83-32-9 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 103 | 83 | 121 |
| EP075(SIM): Fluorene | 86-73-7 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 101 | 81 | 116 |
| EP075(SIM): Phenanthrene | 85-01-8 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 109 | 72 | 117 |
| EP075(SIM): Anthracene | 120-12-7 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 109 | 72 | 115 |
| EP075(SIM): Fluoranthene | 206-44-0 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 97.6 | 70 | 116 |
| EP075(SIM): Pyrene | 129-00-0 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 98.7 | 70 | 134 |
| EP075(SIM): Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 71.5 | 64 | 120 |
| EP075(SIM): Chrysene | 218-01-9 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 116 | 66 | 119 |
| EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2<br>205-82-3 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 98.1 | 59 | 129 |
| EP075(SIM): Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 106 | 70 | 129 |
| EP075(SIM): Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 87.9 | 76 | 121 |
| EP075(SIM): Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 86.8 | 53 | 135 |
| EP075(SIM): Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 90.7 | 45 | 134 |
| EP075(SIM): Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 97.2 | 64 | 131 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 514845)** | | | | | | | | |
| EP075(SIM): Naphthalene | 91-20-3 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 114 | 74 | 119 |
| EP075(SIM): Acenaphthylene | 208-96-8 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 108 | 74 | 118 |
| EP075(SIM): Acenaphthene | 83-32-9 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 113 | 83 | 121 |
| EP075(SIM): Fluorene | 86-73-7 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | # 123 | 81 | 116 |
| EP075(SIM): Phenanthrene | 85-01-8 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | # 144 | 72 | 117 |
| EP075(SIM): Anthracene | 120-12-7 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | # 126 | 72 | 115 |
| EP075(SIM): Fluoranthene | 206-44-0 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | # 124 | 70 | 116 |
| EP075(SIM): Pyrene | 129-00-0 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 122 | 70 | 134 |
| EP075(SIM): Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 111 | 64 | 120 |
| EP075(SIM): Chrysene | 218-01-9 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 112 | 66 | 119 |
| EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2<br>205-82-3 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 105 | 59 | 129 |
| EP075(SIM): Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 125 | 70 | 129 |
| EP075(SIM): Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 97.6 | 76 | 121 |
| EP075(SIM): Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 102 | 53 | 135 |

Sub-Matrix: **SOIL**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 514845) - continued** | | | | | | | | |
| EP075(SIM): Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 104 | 45 | 134 |
| EP075(SIM): Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 101 | 64 | 131 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 514334)** | | | | | | | | |
| EP080: C6 - C9 Fraction | ---- | 10 | mg/kg | <10 | 16 mg/kg | 91.2 | 66 | 120 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 514336)** | | | | | | | | |
| EP071: C10 - C14 Fraction | ---- | 50 | mg/kg | <50 | 318 mg/kg | 112 | 79 | 123 |
| EP071: C15 - C28 Fraction | ---- | 100 | mg/kg | <100 | 531 mg/kg | 99.4 | 77 | 123 |
| EP071: C29 - C36 Fraction | ---- | 100 | mg/kg | <100 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 514843)** | | | | | | | | |
| EP080: C6 - C9 Fraction | ---- | 10 | mg/kg | <10 | 16 mg/kg | 102 | 66 | 120 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 514844)** | | | | | | | | |
| EP071: C10 - C14 Fraction | ---- | 50 | mg/kg | <50 | 318 mg/kg | 115 | 79 | 123 |
| EP071: C15 - C28 Fraction | ---- | 100 | mg/kg | <100 | 531 mg/kg | 103 | 77 | 123 |
| EP071: C29 - C36 Fraction | ---- | 100 | mg/kg | <100 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 514334)** | | | | | | | | |
| EP080: C6 - C10 Fraction | C6_C10 | 10 | mg/kg | <10 | 18.5 mg/kg | 88.7 | 66 | 119 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 514336)** | | | | | | | | |
| EP071: >C10 - C16 Fraction | ---- | 50 | mg/kg | <50 | 428 mg/kg | 110 | 81 | 122 |
| EP071: >C16 - C34 Fraction | ---- | 100 | mg/kg | <100 | 395 mg/kg | 95.0 | 74 | 122 |
| EP071: >C34 - C40 Fraction | ---- | 100 | mg/kg | <100 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 514843)** | | | | | | | | |
| EP080: C6 - C10 Fraction | C6_C10 | 10 | mg/kg | <10 | 18.5 mg/kg | 102 | 66 | 119 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 514844)** | | | | | | | | |
| EP071: >C10 - C16 Fraction | ---- | 50 | mg/kg | <50 | 428 mg/kg | 112 | 81 | 122 |
| EP071: >C16 - C34 Fraction | ---- | 100 | mg/kg | <100 | 395 mg/kg | 101 | 74 | 122 |
| EP071: >C34 - C40 Fraction | ---- | 100 | mg/kg | <100 | ---- | ---- | ---- | ---- |
| **EP080: BTEXN (QCLot: 514334)** | | | | | | | | |
| EP080: Benzene | 71-43-2 | 0.2 | mg/kg | <0.2 | 1 mg/kg | 93.0 | 73 | 105 |
| EP080: Toluene | 108-88-3 | 0.5 | mg/kg | <0.5 | 1 mg/kg | 99.3 | 73 | 105 |
| EP080: Ethylbenzene | 100-41-4 | 0.5 | mg/kg | <0.5 | 1 mg/kg | 99.6 | 67 | 104 |
| EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 0.5 | mg/kg | <0.5 | 2 mg/kg | 104 | 66 | 106 |
| EP080: ortho-Xylene | 95-47-6 | 0.5 | mg/kg | <0.5 | 1 mg/kg | 101 | 68 | 105 |
| EP080: Naphthalene | 91-20-3 | 1 | mg/kg | <1 | 1 mg/kg | 100 | 72 | 115 |
| **EP080: BTEXN (QCLot: 514843)** | | | | | | | | |
| EP080: Benzene | 71-43-2 | 0.2 | mg/kg | <0.2 | 1 mg/kg | 85.5 | 73 | 105 |
| EP080: Toluene | 108-88-3 | 0.5 | mg/kg | <0.5 | 1 mg/kg | 90.6 | 73 | 105 |

Sub-Matrix: **SOIL**

| 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: BTEXN (QCLot: 514843) - continued** | | | | | | | | |
| EP080: Ethylbenzene | 100-41-4 | 0.5 | mg/kg | <0.5 | 1 mg/kg | 91.9 | 67 | 104 |
| EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 0.5 | mg/kg | <0.5 | 2 mg/kg | 89.9 | 66 | 106 |
| EP080: ortho-Xylene | 95-47-6 | 0.5 | mg/kg | <0.5 | 1 mg/kg | 91.2 | 68 | 105 |
| EP080: Naphthalene | 91-20-3 | 1 | mg/kg | <1 | 1 mg/kg | 102 | 72 | 115 |

## 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: **SOIL**

| Laboratory sample ID | Client sample ID | Method: Compound | CAS Number | Matrix Spike (MS) Report: Spike Concentration | SpikeRecovery(%): MS | Recovery Limits (%): Low | Recovery Limits (%): High |
|---|---|---|---|---|---|---|---|
| **EG005T: Total Metals by ICP-AES (QCLot: 514842)** | | | | | | | |
| EB1617705-022 | TRIP1 | EG005T: Arsenic | 7440-38-2 | 50 mg/kg | 98.4 | 70 | 130 |
| | | EG005T: Barium | 7440-39-3 | 50 mg/kg | 112 | 70 | 130 |
| **EG005T: Total Metals by ICP-AES (QCLot: 514937)** | | | | | | | |
| EB1617705-002 | M3 | EG005T: Arsenic | 7440-38-2 | 50 mg/kg | 99.4 | 70 | 130 |
| | | EG005T: Barium | 7440-39-3 | 50 mg/kg | 106 | 70 | 130 |
| **EG020T: Total Metals by ICP-MS (QCLot: 514839)** | | | | | | | |
| EB1617705-022 | TRIP1 | EG020X-T: Copper | 7440-50-8 | 50 mg/kg | 100 | 70 | 130 |
| EB1617705-022 | TRIP1 | EG020X-T: Beryllium | 7440-41-7 | 5 mg/kg | 96.1 | 70 | 130 |
| | | EG020X-T: Cobalt | 7440-48-4 | 50 mg/kg | 98.3 | 70 | 130 |
| | | EG020X-T: Chromium | 7440-47-3 | 50 mg/kg | 102 | 70 | 130 |
| | | EG020X-T: Manganese | 7439-96-5 | 50 mg/kg | # Not Determined | 70 | 130 |
| | | EG020X-T: Nickel | 7440-02-0 | 50 mg/kg | 99.2 | 70 | 130 |
| | | EG020X-T: Lead | 7439-92-1 | 50 mg/kg | 96.2 | 70 | 130 |
| | | EG020X-T: Zinc | 7440-66-6 | 50 mg/kg | 100 | 70 | 130 |
| | | EG020X-T: Vanadium | 7440-62-2 | 50 mg/kg | 98.8 | 70 | 130 |
| **EG020T: Total Metals by ICP-MS (QCLot: 514840)** | | | | | | | |
| EB1617705-022 | TRIP1 | EG020Y-T: Cadmium | 7440-43-9 | 25 mg/kg | 94.8 | 70 | 130 |
| **EG020T: Total Metals by ICP-MS (QCLot: 514939)** | | | | | | | |
| EB1617705-002 | M3 | EG020X-T: Copper | 7440-50-8 | 50 mg/kg | 102 | 70 | 130 |
| EB1617705-002 | M3 | EG020X-T: Beryllium | 7440-41-7 | 5 mg/kg | 88.2 | 70 | 130 |
| | | EG020X-T: Cobalt | 7440-48-4 | 50 mg/kg | 100.0 | 70 | 130 |
| | | EG020X-T: Chromium | 7440-47-3 | 50 mg/kg | 96.5 | 70 | 130 |

Sub-Matrix: **SOIL**

| | | | | Matrix Spike (MS) Report | | | |
|---|---|---|---|---|---|---|---|
| | | | | Spike | SpikeRecovery(%) | Recovery Limits (%) | |
| Laboratory sample ID | Client sample ID | Method: Compound | CAS Number | Concentration | MS | Low | High |
| **EG020T: Total Metals by ICP-MS (QCLot: 514939) - continued** | | | | | | | |
| EB1617705-002 | M3 | EG020X-T: Manganese | 7439-96-5 | 50 mg/kg | # Not Determined | 70 | 130 |
| | | EG020X-T: Nickel | 7440-02-0 | 50 mg/kg | 96.5 | 70 | 130 |
| | | EG020X-T: Lead | 7439-92-1 | 50 mg/kg | 91.1 | 70 | 130 |
| | | EG020X-T: Zinc | 7440-66-6 | 50 mg/kg | 93.6 | 70 | 130 |
| | | EG020X-T: Vanadium | 7440-62-2 | 50 mg/kg | 96.7 | 70 | 130 |
| **EG020T: Total Metals by ICP-MS (QCLot: 514940)** | | | | | | | |
| EB1617705-002 | M3 | EG020Y-T: Cadmium | 7440-43-9 | 25 mg/kg | 92.3 | 70 | 130 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 514841)** | | | | | | | |
| EB1617705-022 | TRIP1 | EG035T: Mercury | 7439-97-6 | 2.5 mg/kg | 102 | 70 | 130 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 514938)** | | | | | | | |
| EB1617705-002 | M3 | EG035T: Mercury | 7439-97-6 | 2.5 mg/kg | 104 | 70 | 130 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 514945)** | | | | | | | |
| EB1617705-002 | M3 | EK059G: Nitrite + Nitrate as N (Sol.) | ---- | 2 mg/kg | 95.5 | 70 | 130 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 514946)** | | | | | | | |
| EB1617705-022 | TRIP1 | EK059G: Nitrite + Nitrate as N (Sol.) | ---- | 2 mg/kg | 98.9 | 70 | 130 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 514942)** | | | | | | | |
| EB1617705-002 | M3 | EK061G: Total Kjeldahl Nitrogen as N | ---- | 500 mg/kg | 83.1 | 70 | 130 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 514943)** | | | | | | | |
| EB1617705-022 | TRIP1 | EK061G: Total Kjeldahl Nitrogen as N | ---- | 500 mg/kg | 102 | 70 | 130 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 514941)** | | | | | | | |
| EB1617705-002 | M3 | EK067G: Total Phosphorus as P | ---- | 100 mg/kg | 92.3 | 70 | 130 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 514944)** | | | | | | | |
| EB1617705-022 | TRIP1 | EK067G: Total Phosphorus as P | ---- | 100 mg/kg | 96.2 | 70 | 130 |
| **EP004: Organic Matter (QCLot: 514477)** | | | | | | | |
| EB1617705-002 | M3 | EP004: Organic Matter | ---- | 1.84 % | 83.0 | 70 | 130 |
| | | EP004: Total Organic Carbon | ---- | 1.04 % | 83.0 | 70 | 130 |
| **EP004: Organic Matter (QCLot: 514480)** | | | | | | | |
| EB1617705-022 | TRIP1 | EP004: Organic Matter | ---- | 1.84 % | 83.0 | 70 | 130 |
| | | EP004: Total Organic Carbon | ---- | 1.04 % | 83.0 | 70 | 130 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 514335)** | | | | | | | |
| EB1617705-002 | M3 | EP075(SIM): Acenaphthene | 83-32-9 | 1.5 mg/kg | 106 | 70 | 130 |
| | | EP075(SIM): Pyrene | 129-00-0 | 1.5 mg/kg | 108 | 70 | 130 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 514845)** | | | | | | | |

Sub-Matrix: **SOIL**

| | | | | Matrix Spike (MS) Report | | | |
|---|---|---|---|---|---|---|---|
| | | | | Spike | SpikeRecovery(%) | Recovery Limits (%) | |
| Laboratory sample ID | Client sample ID | Method: Compound | CAS Number | Concentration | MS | Low | High |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 514845) - continued** | | | | | | | |
| EB1617705-022 | TRIP1 | EP075(SIM): Acenaphthene | 83-32-9 | 1.5 mg/kg | 111 | 70 | 130 |
| | | EP075(SIM): Pyrene | 129-00-0 | 1.5 mg/kg | 118 | 70 | 130 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 514334)** | | | | | | | |
| EB1617705-002 | M3 | EP080: C6 - C9 Fraction | ---- | 8 mg/kg | 75.3 | 70 | 130 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 514336)** | | | | | | | |
| EB1617705-002 | M3 | EP071: C10 - C14 Fraction | ---- | 318 mg/kg | 114 | 70 | 130 |
| | | EP071: C15 - C28 Fraction | ---- | 531 mg/kg | 102 | 70 | 130 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 514843)** | | | | | | | |
| EB1617705-022 | TRIP1 | EP080: C6 - C9 Fraction | ---- | 8 mg/kg | 77.3 | 70 | 130 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 514844)** | | | | | | | |
| EB1617705-022 | TRIP1 | EP071: C10 - C14 Fraction | ---- | 318 mg/kg | 110 | 70 | 130 |
| | | EP071: C15 - C28 Fraction | ---- | 531 mg/kg | 100 | 70 | 130 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 514334)** | | | | | | | |
| EB1617705-002 | M3 | EP080: C6 - C10 Fraction | C6_C10 | 8 mg/kg | 77.6 | 70 | 130 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 514336)** | | | | | | | |
| EB1617705-002 | M3 | EP071: >C10 - C16 Fraction | ---- | 428 mg/kg | 113 | 70 | 130 |
| | | EP071: >C16 - C34 Fraction | ---- | 395 mg/kg | 96.8 | 70 | 130 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 514843)** | | | | | | | |
| EB1617705-022 | TRIP1 | EP080: C6 - C10 Fraction | C6_C10 | 8 mg/kg | 79.5 | 70 | 130 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 514844)** | | | | | | | |
| EB1617705-022 | TRIP1 | EP071: >C10 - C16 Fraction | ---- | 428 mg/kg | 109 | 70 | 130 |
| | | EP071: >C16 - C34 Fraction | ---- | 395 mg/kg | 97.4 | 70 | 130 |
| **EP080: BTEXN (QCLot: 514334)** | | | | | | | |
| EB1617705-002 | M3 | EP080: Benzene | 71-43-2 | 2 mg/kg | 77.4 | 70 | 130 |
| | | EP080: Toluene | 108-88-3 | 2 mg/kg | 72.8 | 70 | 130 |
| **EP080: BTEXN (QCLot: 514843)** | | | | | | | |
| EB1617705-022 | TRIP1 | EP080: Benzene | 71-43-2 | 2 mg/kg | # 63.6 | 70 | 130 |
| | | EP080: Toluene | 108-88-3 | 2 mg/kg | # 63.6 | 70 | 130 |

ALS Environmental

# QA/QC Compliance Assessment to assist with Quality Review

| | | | |
|---|---|---|---|
| **Work Order** | : **EB1617705** | Page | : 1 of 25 |
| Client | : **BMT WBM GROUP LTD** | Laboratory | : Environmental Division Brisbane |
| Contact | : MR JEREMY VISSER | Telephone | : +61 7 3552 8634 |
| Project | : B21414 Elk | Date Samples Received | : 11-Jul-2016 |
| Site | : ---- | Issue Date | : 27-Jul-2016 |
| Sampler | : CONOR JONES, DANIEL MORAN | No. of samples received | : 31 |
| Order number | : ---- | No. of samples analysed | : 27 |

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

### Outliers : Analysis Holding Time Compliance

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

### Outliers : Frequency of Quality Control Samples

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

## Outliers : Quality Control Samples

*Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes*

Matrix: **SOIL**

| Compound Group Name | Laboratory Sample ID | Client Sample ID | Analyte | CAS Number | Data | Limits | Comment |
|---|---|---|---|---|---|---|---|
| **Method Blank (MB) Values** | | | | | | | |
| EG020T: Total Metals by ICP-MS | QC-MRG4-51493700 | ---- | **Manganese** | 7439-96-5 | 0.1 mg/kg | 0.1 mg/kg | **Blank result exceeds permitted value** |
| **Laboratory Control Spike (LCS) Recoveries** | | | | | | | |
| EG020T: Total Metals by ICP-MS | QC-MRG4-51483900 | ---- | **Lead** | 7439-92-1 | 124 % | 85-117% | **Recovery greater than upper control limit** |
| EP075(SIM)B: Polynuclear Aromatic Hydrocarbons | QC-514845-002 | ---- | **Fluorene** | 86-73-7 | 123 % | 81-116% | **Recovery greater than upper control limit** |
| EP075(SIM)B: Polynuclear Aromatic Hydrocarbons | QC-514845-002 | ---- | **Phenanthrene** | 85-01-8 | 144 % | 72-117% | **Recovery greater than upper control limit** |
| EP075(SIM)B: Polynuclear Aromatic Hydrocarbons | QC-514845-002 | ---- | **Anthracene** | 120-12-7 | 126 % | 72-115% | **Recovery greater than upper control limit** |
| EP075(SIM)B: Polynuclear Aromatic Hydrocarbons | QC-514845-002 | ---- | **Fluoranthene** | 206-44-0 | 124 % | 70-116% | **Recovery greater than upper control limit** |
| **Matrix Spike (MS) Recoveries** | | | | | | | |
| EG020T: Total Metals by ICP-MS | EB1617705--022 | TRIP1 | **Manganese** | 7439-96-5 | Not Determined | ---- | **MS recovery not determined, background level greater than or equal to 4x spike level.** |
| EG020T: Total Metals by ICP-MS | EB1617705--002 | M3 | **Manganese** | 7439-96-5 | Not Determined | ---- | **MS recovery not determined, background level greater than or equal to 4x spike level.** |
| EP080: BTEXN | EB1617705--022 | TRIP1 | **Benzene** | 71-43-2 | 63.6 % | 70-130% | **Recovery less than lower data quality objective** |
| EP080: BTEXN | EB1617705--022 | TRIP1 | **Toluene** | 108-88-3 | 63.6 % | 70-130% | **Recovery less than lower data quality objective** |

## Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

| Method / Container / Client Sample ID(s) | | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Days overdue | Date analysed | Due for analysis | Days overdue |
| **EA055: Moisture Content** | | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | | |
| M6, | M3, | ---- | ---- | ---- | 11-Jul-2016 | 09-Jul-2016 | **2** |
| M9, | M10, | | | | | | |
| M4, | M12, | | | | | | |
| M11, | M2 | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | | |
| M8, | M5, | ---- | ---- | ---- | 11-Jul-2016 | 10-Jul-2016 | **1** |
| M1, | M7 | | | | | | |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | |

Matrix: **SOIL**

| 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 - Analysis Holding Time Compliance** | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | |
| M6, M3, M9, M10, M4, M12, M11, M2 | 11-Jul-2016 | 09-Jul-2016 | **2** | ---- | ---- | ---- |
| **Soil Glass Jar - Unpreserved** | | | | | | |
| M8, M5, M1, M7 | 11-Jul-2016 | 10-Jul-2016 | **1** | ---- | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | |
| M6, M3, M9, M10, M4, M12, M11, M2 | 11-Jul-2016 | 09-Jul-2016 | **2** | ---- | ---- | ---- |
| **Soil Glass Jar - Unpreserved** | | | | | | |
| M6, M3, M9, M10, M4, M12, M11, M2 | 11-Jul-2016 | 09-Jul-2016 | **2** | 14-Jul-2016 | 09-Jul-2016 | **5** |
| **Soil Glass Jar - Unpreserved** | | | | | | |
| M8, M5, M1, M7 | 11-Jul-2016 | 10-Jul-2016 | **1** | ---- | ---- | ---- |
| **Soil Glass Jar - Unpreserved** | | | | | | |
| M8, M5, M1, M7 | 11-Jul-2016 | 10-Jul-2016 | **1** | 14-Jul-2016 | 10-Jul-2016 | **4** |
| **Soil Glass Jar - Unpreserved** | | | | | | |
| 18, 19 | ---- | ---- | ---- | 14-Jul-2016 | 11-Jul-2016 | **3** |
| **Soil Glass Jar - Unpreserved** | | | | | | |
| 21, 22 | ---- | ---- | ---- | 14-Jul-2016 | 12-Jul-2016 | **2** |
| **Soil Glass Jar - Unpreserved** | | | | | | |
| 20 | ---- | ---- | ---- | 14-Jul-2016 | 13-Jul-2016 | **1** |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | |
| M6, M3, M9, M10, M4, M12, M11, M2 | 11-Jul-2016 | 09-Jul-2016 | **2** | ---- | ---- | ---- |

Matrix: **SOIL**

| Method / Container / Client Sample ID(s) | Extraction / Preparation: Date extracted | Extraction / Preparation: Due for extraction | Extraction / Preparation: Days overdue | Analysis: Date analysed | Analysis: Due for analysis | Analysis: Days overdue |
|---|---|---|---|---|---|---|
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Analysis Holding Time** | | | | | | |
| **Soil Glass Jar - Unpreserved**<br>M6, M3, M9, M10, M4, M12, M11, M2 | 11-Jul-2016 | 09-Jul-2016 | **2** | 14-Jul-2016 | 09-Jul-2016 | **5** |
| **Soil Glass Jar - Unpreserved**<br>M8, M5, M1, M7 | 11-Jul-2016 | 10-Jul-2016 | **1** | ---- | ---- | ---- |
| **Soil Glass Jar - Unpreserved**<br>M8, M5, M1, M7 | 11-Jul-2016 | 10-Jul-2016 | **1** | 14-Jul-2016 | 10-Jul-2016 | **4** |
| **Soil Glass Jar - Unpreserved**<br>18, 19 | ---- | ---- | ---- | 14-Jul-2016 | 11-Jul-2016 | **3** |
| **Soil Glass Jar - Unpreserved**<br>21, 22 | ---- | ---- | ---- | 14-Jul-2016 | 12-Jul-2016 | **2** |
| **Soil Glass Jar - Unpreserved**<br>20 | ---- | ---- | ---- | 14-Jul-2016 | 13-Jul-2016 | **1** |
| **EP080: BTEXN** | | | | | | |
| **Soil Glass Jar - Unpreserved**<br>M6, M3, M9, M10, M4, M12, M11, M2 | 11-Jul-2016 | 09-Jul-2016 | **2** | 14-Jul-2016 | 09-Jul-2016 | **5** |
| **Soil Glass Jar - Unpreserved**<br>M8, M5, M1, M7 | 11-Jul-2016 | 10-Jul-2016 | **1** | 14-Jul-2016 | 10-Jul-2016 | **4** |
| **Soil Glass Jar - Unpreserved**<br>18, 19 | ---- | ---- | ---- | 14-Jul-2016 | 11-Jul-2016 | **3** |
| **Soil Glass Jar - Unpreserved**<br>21, 22 | ---- | ---- | ---- | 14-Jul-2016 | 12-Jul-2016 | **2** |
| **Soil Glass Jar - Unpreserved**<br>20 | ---- | ---- | ---- | 14-Jul-2016 | 13-Jul-2016 | **1** |

## *Outliers : Frequency of Quality Control Samples*

Matrix: **SOIL**

| Quality Control Sample Type / Method | Count: QC | Count: Regular | Rate (%): Actual | Rate (%): Expected | Quality Control Specification |
|---|---|---|---|---|---|
| Matrix Spikes (MS) | | | | | |
| Total Metals by ICP-MS - Suite Z | 0 | 27 | 0.00 | 5.00 | NEPM 2013 B3 & ALS QC Standard |

# Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EA055: Moisture Content** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EA055-103)** 23b, 24b, DUP1 | **02-Jul-2016** | **----** | ---- | ---- | **11-Jul-2016** | 16-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA055-103)** DUP2, TRIP1, TRIP BLANK | **02-Jul-2016** | **----** | ---- | ---- | **12-Jul-2016** | 16-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA055-103)** M25 | **04-Jul-2016** | **----** | ---- | ---- | **12-Jul-2016** | 18-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA055-103)** M31, M37 | **05-Jul-2016** | **----** | ---- | ---- | **12-Jul-2016** | 19-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA055-103)** M43 | **06-Jul-2016** | **----** | ---- | ---- | **12-Jul-2016** | 20-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA055-103)** M6, M3, M9, M10, M4, M12, M11, M2 | **25-Jun-2016** | **----** | ---- | ---- | **11-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EA055-103)** M8, M5, M1, M7 | **26-Jun-2016** | **----** | ---- | ---- | **11-Jul-2016** | 10-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EA055-103)** 18, 19 | **27-Jun-2016** | **----** | ---- | ---- | **11-Jul-2016** | 11-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA055-103)** 21, 22 | **28-Jun-2016** | **----** | ---- | ---- | **11-Jul-2016** | 12-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA055-103)** 20 | **29-Jun-2016** | **----** | ---- | ---- | **11-Jul-2016** | 13-Jul-2016 | ✓ |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EA150: Particle Sizing** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EA150H)** | | | | | | | |
| 23b, 24b | **02-Jul-2016** | **----** | ---- | ---- | **26-Jul-2016** | 29-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA150H)** | | | | | | | |
| M31, M37 | **05-Jul-2016** | **----** | ---- | ---- | **26-Jul-2016** | 01-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EA150H)** | | | | | | | |
| M43 | **06-Jul-2016** | **----** | ---- | ---- | **26-Jul-2016** | 02-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EA150H)** | | | | | | | |
| M6, M3, M9, M10, M4, M12, M11, M2 | **25-Jun-2016** | **----** | ---- | ---- | **26-Jul-2016** | 22-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA150H)** | | | | | | | |
| M8, M5, M1, M7 | **26-Jun-2016** | **----** | ---- | ---- | **26-Jul-2016** | 23-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA150H)** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **----** | ---- | ---- | **26-Jul-2016** | 24-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA150H)** | | | | | | | |
| 21, 22 | **28-Jun-2016** | **----** | ---- | ---- | **26-Jul-2016** | 25-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA150H)** | | | | | | | |
| 20 | **29-Jun-2016** | **----** | ---- | ---- | **26-Jul-2016** | 26-Dec-2016 | ✓ |
| **EA150: Soil Classification based on Particle Size** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EA150H)** | | | | | | | |
| 23b, 24b | **02-Jul-2016** | **----** | ---- | ---- | **26-Jul-2016** | 29-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA150H)** | | | | | | | |
| M31, M37 | **05-Jul-2016** | **----** | ---- | ---- | **26-Jul-2016** | 01-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EA150H)** | | | | | | | |
| M43 | **06-Jul-2016** | **----** | ---- | ---- | **26-Jul-2016** | 02-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EA150H)** | | | | | | | |
| M6, M3, M9, M10, M4, M12, M11, M2 | **25-Jun-2016** | **----** | ---- | ---- | **26-Jul-2016** | 22-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA150H)** | | | | | | | |
| M8, M5, M1, M7 | **26-Jun-2016** | **----** | ---- | ---- | **26-Jul-2016** | 23-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA150H)** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **----** | ---- | ---- | **26-Jul-2016** | 24-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA150H)** | | | | | | | |
| 21, 22 | **28-Jun-2016** | **----** | ---- | ---- | **26-Jul-2016** | 25-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA150H)** | | | | | | | |
| 20 | **29-Jun-2016** | **----** | ---- | ---- | **26-Jul-2016** | 26-Dec-2016 | ✓ |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EA152: Soil Particle Density** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EA152)** | | | | | | | |
| 23b, 24b | **02-Jul-2016** | **----** | ---- | ---- | **26-Jul-2016** | 29-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA152)** | | | | | | | |
| M31, M37 | **05-Jul-2016** | **----** | ---- | ---- | **26-Jul-2016** | 01-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EA152)** | | | | | | | |
| M43 | **06-Jul-2016** | **----** | ---- | ---- | **26-Jul-2016** | 02-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EA152)** | | | | | | | |
| M6, M3, M9, M10, M4, M12, M11, M2 | **25-Jun-2016** | **----** | ---- | ---- | **26-Jul-2016** | 22-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA152)** | | | | | | | |
| M8, M5, M1, M7 | **26-Jun-2016** | **----** | ---- | ---- | **26-Jul-2016** | 23-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA152)** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **----** | ---- | ---- | **26-Jul-2016** | 24-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA152)** | | | | | | | |
| 21, 22 | **28-Jun-2016** | **----** | ---- | ---- | **26-Jul-2016** | 25-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EA152)** | | | | | | | |
| 20 | **29-Jun-2016** | **----** | ---- | ---- | **26-Jul-2016** | 26-Dec-2016 | ✓ |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EG005T: Total Metals by ICP-AES** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EG005T)**<br>DUP2, TRIP1, TRIP BLANK | **02-Jul-2016** | **12-Jul-2016** | 29-Dec-2016 | ✓ | **13-Jul-2016** | 29-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG005T)**<br>23b, 24b, DUP1 | **02-Jul-2016** | **13-Jul-2016** | 29-Dec-2016 | ✓ | **13-Jul-2016** | 29-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG005T)**<br>M25 | **04-Jul-2016** | **12-Jul-2016** | 31-Dec-2016 | ✓ | **13-Jul-2016** | 31-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG005T)**<br>M31, M37 | **05-Jul-2016** | **12-Jul-2016** | 01-Jan-2017 | ✓ | **13-Jul-2016** | 01-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EG005T)**<br>M43 | **06-Jul-2016** | **12-Jul-2016** | 02-Jan-2017 | ✓ | **13-Jul-2016** | 02-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EG005T)**<br>M6, M3, M9, M10, M4, M12, M11, M2 | **25-Jun-2016** | **13-Jul-2016** | 22-Dec-2016 | ✓ | **13-Jul-2016** | 22-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG005T)**<br>M8, M5, M1, M7 | **26-Jun-2016** | **13-Jul-2016** | 23-Dec-2016 | ✓ | **13-Jul-2016** | 23-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG005T)**<br>18, 19 | **27-Jun-2016** | **13-Jul-2016** | 24-Dec-2016 | ✓ | **13-Jul-2016** | 24-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG005T)**<br>21, 22 | **28-Jun-2016** | **13-Jul-2016** | 25-Dec-2016 | ✓ | **13-Jul-2016** | 25-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG005T)**<br>20 | **29-Jun-2016** | **13-Jul-2016** | 26-Dec-2016 | ✓ | **13-Jul-2016** | 26-Dec-2016 | ✓ |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EG020T: Total Metals by ICP-MS** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EG020Y-T)**<br>DUP2, TRIP1, TRIP BLANK | **02-Jul-2016** | **12-Jul-2016** | 29-Dec-2016 | ✓ | **13-Jul-2016** | 29-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG020Y-T)**<br>23b, 24b, DUP1 | **02-Jul-2016** | **13-Jul-2016** | 29-Dec-2016 | ✓ | **13-Jul-2016** | 29-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG020Z-T)**<br>23b, 24b, DUP1, DUP2, TRIP1, TRIP BLANK | **02-Jul-2016** | **15-Jul-2016** | 29-Dec-2016 | ✓ | **15-Jul-2016** | 29-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG020Y-T)**<br>M25 | **04-Jul-2016** | **12-Jul-2016** | 31-Dec-2016 | ✓ | **13-Jul-2016** | 31-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG020Z-T)**<br>M25 | **04-Jul-2016** | **15-Jul-2016** | 31-Dec-2016 | ✓ | **15-Jul-2016** | 31-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG020Y-T)**<br>M31, M37 | **05-Jul-2016** | **12-Jul-2016** | 01-Jan-2017 | ✓ | **13-Jul-2016** | 01-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EG020Z-T)**<br>M31, M37 | **05-Jul-2016** | **15-Jul-2016** | 01-Jan-2017 | ✓ | **15-Jul-2016** | 01-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EG020Y-T)**<br>M43 | **06-Jul-2016** | **12-Jul-2016** | 02-Jan-2017 | ✓ | **13-Jul-2016** | 02-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EG020Z-T)**<br>M43 | **06-Jul-2016** | **15-Jul-2016** | 02-Jan-2017 | ✓ | **15-Jul-2016** | 02-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EG020Y-T)**<br>M6, M3, M9, M10, M4, M12, M11, M2 | **25-Jun-2016** | **13-Jul-2016** | 22-Dec-2016 | ✓ | **13-Jul-2016** | 22-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG020Z-T)**<br>M6, M3, M9, M10, M4, M12, M11, M2 | **25-Jun-2016** | **15-Jul-2016** | 22-Dec-2016 | ✓ | **15-Jul-2016** | 22-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG020Y-T)**<br>M8, M5, M1, M7 | **26-Jun-2016** | **13-Jul-2016** | 23-Dec-2016 | ✓ | **13-Jul-2016** | 23-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG020Z-T)**<br>M8, M5, M1, M7 | **26-Jun-2016** | **15-Jul-2016** | 23-Dec-2016 | ✓ | **15-Jul-2016** | 23-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG020Y-T)**<br>18, 19 | **27-Jun-2016** | **13-Jul-2016** | 24-Dec-2016 | ✓ | **13-Jul-2016** | 24-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG020Z-T)**<br>18, 19 | **27-Jun-2016** | **15-Jul-2016** | 24-Dec-2016 | ✓ | **15-Jul-2016** | 24-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG020Y-T)**<br>21, 22 | **28-Jun-2016** | **13-Jul-2016** | 25-Dec-2016 | ✓ | **13-Jul-2016** | 25-Dec-2016 | ✓ |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EG020T: Total Metals by ICP-MS - Continued** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EG020Z-T)** | | | | | | | |
| 21, 22 | **28-Jun-2016** | **15-Jul-2016** | 25-Dec-2016 | ✓ | **15-Jul-2016** | 25-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG020Y-T)** | | | | | | | |
| 20 | **29-Jun-2016** | **13-Jul-2016** | 26-Dec-2016 | ✓ | **13-Jul-2016** | 26-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG020Z-T)** | | | | | | | |
| 20 | **29-Jun-2016** | **15-Jul-2016** | 26-Dec-2016 | ✓ | **15-Jul-2016** | 26-Dec-2016 | ✓ |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EG035T)** | | | | | | | |
| DUP2, TRIP1, TRIP BLANK | **02-Jul-2016** | **12-Jul-2016** | 30-Jul-2016 | ✓ | **13-Jul-2016** | 30-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG035T)** | | | | | | | |
| 23b, 24b, DUP1 | **02-Jul-2016** | **13-Jul-2016** | 30-Jul-2016 | ✓ | **13-Jul-2016** | 30-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG035T)** | | | | | | | |
| M25 | **04-Jul-2016** | **12-Jul-2016** | 01-Aug-2016 | ✓ | **13-Jul-2016** | 01-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG035T)** | | | | | | | |
| M31, M37 | **05-Jul-2016** | **12-Jul-2016** | 02-Aug-2016 | ✓ | **13-Jul-2016** | 02-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG035T)** | | | | | | | |
| M43 | **06-Jul-2016** | **12-Jul-2016** | 03-Aug-2016 | ✓ | **13-Jul-2016** | 03-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG035T)** | | | | | | | |
| M6, M3, M9, M10, M4, M12, M11, M2 | **25-Jun-2016** | **13-Jul-2016** | 23-Jul-2016 | ✓ | **13-Jul-2016** | 23-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG035T)** | | | | | | | |
| M8, M5, M1, M7 | **26-Jun-2016** | **13-Jul-2016** | 24-Jul-2016 | ✓ | **13-Jul-2016** | 24-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG035T)** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **13-Jul-2016** | 25-Jul-2016 | ✓ | **13-Jul-2016** | 25-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG035T)** | | | | | | | |
| 21, 22 | **28-Jun-2016** | **13-Jul-2016** | 26-Jul-2016 | ✓ | **13-Jul-2016** | 26-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EG035T)** | | | | | | | |
| 20 | **29-Jun-2016** | **13-Jul-2016** | 27-Jul-2016 | ✓ | **13-Jul-2016** | 27-Jul-2016 | ✓ |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EK059G)** | | | | | | | |
| 23b, 24b, DUP1, DUP2, TRIP1, TRIP BLANK | **02-Jul-2016** | **13-Jul-2016** | 29-Dec-2016 | ✓ | **13-Jul-2016** | 29-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK059G)** | | | | | | | |
| M25 | **04-Jul-2016** | **13-Jul-2016** | 31-Dec-2016 | ✓ | **13-Jul-2016** | 31-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK059G)** | | | | | | | |
| M31, M37 | **05-Jul-2016** | **13-Jul-2016** | 01-Jan-2017 | ✓ | **13-Jul-2016** | 01-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EK059G)** | | | | | | | |
| M43 | **06-Jul-2016** | **13-Jul-2016** | 02-Jan-2017 | ✓ | **13-Jul-2016** | 02-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EK059G)** | | | | | | | |
| M6, M3, M9, M10, M4, M12, M11, M2 | **25-Jun-2016** | **13-Jul-2016** | 22-Dec-2016 | ✓ | **13-Jul-2016** | 22-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK059G)** | | | | | | | |
| M8, M5, M1, M7 | **26-Jun-2016** | **13-Jul-2016** | 23-Dec-2016 | ✓ | **13-Jul-2016** | 23-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK059G)** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **13-Jul-2016** | 24-Dec-2016 | ✓ | **13-Jul-2016** | 24-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK059G)** | | | | | | | |
| 21, 22 | **28-Jun-2016** | **13-Jul-2016** | 25-Dec-2016 | ✓ | **13-Jul-2016** | 25-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK059G)** | | | | | | | |
| 20 | **29-Jun-2016** | **13-Jul-2016** | 26-Dec-2016 | ✓ | **13-Jul-2016** | 26-Dec-2016 | ✓ |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EK061G)**<br>23b, 24b,<br>DUP1, DUP2,<br>TRIP1, TRIP BLANK | **02-Jul-2016** | **14-Jul-2016** | 29-Dec-2016 | ✓ | **14-Jul-2016** | 29-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK061G)**<br>M25 | **04-Jul-2016** | **14-Jul-2016** | 31-Dec-2016 | ✓ | **14-Jul-2016** | 31-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK061G)**<br>M31, M37 | **05-Jul-2016** | **14-Jul-2016** | 01-Jan-2017 | ✓ | **14-Jul-2016** | 01-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EK061G)**<br>M43 | **06-Jul-2016** | **14-Jul-2016** | 02-Jan-2017 | ✓ | **14-Jul-2016** | 02-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EK061G)**<br>M6, M3,<br>M9, M10,<br>M4, M12,<br>M11, M2 | **25-Jun-2016** | **14-Jul-2016** | 22-Dec-2016 | ✓ | **14-Jul-2016** | 22-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK061G)**<br>M8, M5,<br>M1, M7 | **26-Jun-2016** | **14-Jul-2016** | 23-Dec-2016 | ✓ | **14-Jul-2016** | 23-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK061G)**<br>18, 19 | **27-Jun-2016** | **14-Jul-2016** | 24-Dec-2016 | ✓ | **14-Jul-2016** | 24-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK061G)**<br>21, 22 | **28-Jun-2016** | **14-Jul-2016** | 25-Dec-2016 | ✓ | **14-Jul-2016** | 25-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK061G)**<br>20 | **29-Jun-2016** | **14-Jul-2016** | 26-Dec-2016 | ✓ | **14-Jul-2016** | 26-Dec-2016 | ✓ |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EK067G)** | | | | | | | |
| 23b, 24b, DUP1, DUP2, TRIP1, TRIP BLANK | **02-Jul-2016** | **14-Jul-2016** | 29-Dec-2016 | ✓ | **14-Jul-2016** | 29-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK067G)** | | | | | | | |
| M25 | **04-Jul-2016** | **14-Jul-2016** | 31-Dec-2016 | ✓ | **14-Jul-2016** | 31-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK067G)** | | | | | | | |
| M31, M37 | **05-Jul-2016** | **14-Jul-2016** | 01-Jan-2017 | ✓ | **14-Jul-2016** | 01-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EK067G)** | | | | | | | |
| M43 | **06-Jul-2016** | **14-Jul-2016** | 02-Jan-2017 | ✓ | **14-Jul-2016** | 02-Jan-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EK067G)** | | | | | | | |
| M6, M3, M9, M10, M4, M12, M11, M2 | **25-Jun-2016** | **14-Jul-2016** | 22-Dec-2016 | ✓ | **14-Jul-2016** | 22-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK067G)** | | | | | | | |
| M8, M5, M1, M7 | **26-Jun-2016** | **14-Jul-2016** | 23-Dec-2016 | ✓ | **14-Jul-2016** | 23-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK067G)** | | | | | | | |
| 18, 19 | **27-Jun-2016** | **14-Jul-2016** | 24-Dec-2016 | ✓ | **14-Jul-2016** | 24-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK067G)** | | | | | | | |
| 21, 22 | **28-Jun-2016** | **14-Jul-2016** | 25-Dec-2016 | ✓ | **14-Jul-2016** | 25-Dec-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EK067G)** | | | | | | | |
| 20 | **29-Jun-2016** | **14-Jul-2016** | 26-Dec-2016 | ✓ | **14-Jul-2016** | 26-Dec-2016 | ✓ |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EP004: Organic Matter** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EP004)**<br>23b, 24b,<br>DUP1, DUP2,<br>TRIP1, TRIP BLANK | **02-Jul-2016** | **12-Jul-2016** | 30-Jul-2016 | ✓ | **18-Jul-2016** | 30-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP004)**<br>M25 | **04-Jul-2016** | **12-Jul-2016** | 01-Aug-2016 | ✓ | **18-Jul-2016** | 01-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP004)**<br>M31, M37 | **05-Jul-2016** | **12-Jul-2016** | 02-Aug-2016 | ✓ | **18-Jul-2016** | 02-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP004)**<br>M43 | **06-Jul-2016** | **12-Jul-2016** | 03-Aug-2016 | ✓ | **18-Jul-2016** | 03-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP004)**<br>M6, M3,<br>M9, M10,<br>M4, M12,<br>M11, M2 | **25-Jun-2016** | **12-Jul-2016** | 23-Jul-2016 | ✓ | **18-Jul-2016** | 23-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP004)**<br>M8, M5,<br>M1, M7 | **26-Jun-2016** | **12-Jul-2016** | 24-Jul-2016 | ✓ | **18-Jul-2016** | 24-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP004)**<br>18, 19 | **27-Jun-2016** | **12-Jul-2016** | 25-Jul-2016 | ✓ | **18-Jul-2016** | 25-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP004)**<br>21, 22 | **28-Jun-2016** | **12-Jul-2016** | 26-Jul-2016 | ✓ | **18-Jul-2016** | 26-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP004)**<br>20 | **29-Jun-2016** | **12-Jul-2016** | 27-Jul-2016 | ✓ | **18-Jul-2016** | 27-Jul-2016 | ✓ |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EP075(SIM))**<br>23b, 24b, DUP1 | **02-Jul-2016** | **11-Jul-2016** | 16-Jul-2016 | ✓ | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP075(SIM))**<br>DUP2, TRIP1, TRIP BLANK | **02-Jul-2016** | **13-Jul-2016** | 16-Jul-2016 | ✓ | **14-Jul-2016** | 22-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP075(SIM))**<br>M25 | **04-Jul-2016** | **13-Jul-2016** | 18-Jul-2016 | ✓ | **14-Jul-2016** | 22-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP075(SIM))**<br>M31, M37 | **05-Jul-2016** | **13-Jul-2016** | 19-Jul-2016 | ✓ | **14-Jul-2016** | 22-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP075(SIM))**<br>M43 | **06-Jul-2016** | **13-Jul-2016** | 20-Jul-2016 | ✓ | **14-Jul-2016** | 22-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP075(SIM))**<br>M6, M3, M9, M10, M4, M12, M11, M2 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP075(SIM))**<br>M8, M5, M1, M7 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP075(SIM))**<br>18, 19 | **27-Jun-2016** | **11-Jul-2016** | 11-Jul-2016 | ✓ | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP075(SIM))**<br>21, 22 | **28-Jun-2016** | **11-Jul-2016** | 12-Jul-2016 | ✓ | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP075(SIM))**<br>20 | **29-Jun-2016** | **11-Jul-2016** | 13-Jul-2016 | ✓ | **12-Jul-2016** | 20-Aug-2016 | ✓ |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EP071)** 23b, 24b, DUP1 | **02-Jul-2016** | **11-Jul-2016** | 16-Jul-2016 | ✓ | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** 23b, 24b, DUP1 | **02-Jul-2016** | **11-Jul-2016** | 16-Jul-2016 | ✓ | **14-Jul-2016** | 16-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** DUP2, TRIP1, TRIP BLANK | **02-Jul-2016** | **12-Jul-2016** | 16-Jul-2016 | ✓ | **13-Jul-2016** | 16-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP071)** DUP2, TRIP1, TRIP BLANK | **02-Jul-2016** | **13-Jul-2016** | 16-Jul-2016 | ✓ | **14-Jul-2016** | 22-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M25 | **04-Jul-2016** | **12-Jul-2016** | 18-Jul-2016 | ✓ | **13-Jul-2016** | 18-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP071)** M25 | **04-Jul-2016** | **13-Jul-2016** | 18-Jul-2016 | ✓ | **14-Jul-2016** | 22-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M31, M37 | **05-Jul-2016** | **12-Jul-2016** | 19-Jul-2016 | ✓ | **13-Jul-2016** | 19-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP071)** M31, M37 | **05-Jul-2016** | **13-Jul-2016** | 19-Jul-2016 | ✓ | **14-Jul-2016** | 22-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M43 | **06-Jul-2016** | **12-Jul-2016** | 20-Jul-2016 | ✓ | **13-Jul-2016** | 20-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP071)** M43 | **06-Jul-2016** | **13-Jul-2016** | 20-Jul-2016 | ✓ | **14-Jul-2016** | 22-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP071)** M6 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M6 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **14-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M3 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M3 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **14-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M9 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M9 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **14-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M10 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M10 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **14-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M4 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M4 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **14-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** | | | | | | | |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EP080/071: Total Petroleum Hydrocarbons - Continued** | | | | | | | |
| M12 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M12 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **14-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M11 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M11 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **14-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M2 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M2 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **14-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M8 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M8 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **14-Jul-2016** | 10-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M5 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M5 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **14-Jul-2016** | 10-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M1 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M1 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **14-Jul-2016** | 10-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M7 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M7 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **14-Jul-2016** | 10-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** 18 | **27-Jun-2016** | **11-Jul-2016** | 11-Jul-2016 | ✓ | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** 18 | **27-Jun-2016** | **11-Jul-2016** | 11-Jul-2016 | ✓ | **14-Jul-2016** | 11-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** 19 | **27-Jun-2016** | **11-Jul-2016** | 11-Jul-2016 | ✓ | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** 19 | **27-Jun-2016** | **11-Jul-2016** | 11-Jul-2016 | ✓ | **14-Jul-2016** | 11-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** 21 | **28-Jun-2016** | **11-Jul-2016** | 12-Jul-2016 | ✓ | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** 21 | **28-Jun-2016** | **11-Jul-2016** | 12-Jul-2016 | ✓ | **14-Jul-2016** | 12-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** 22 | **28-Jun-2016** | **11-Jul-2016** | 12-Jul-2016 | ✓ | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** 22 | **28-Jun-2016** | **11-Jul-2016** | 12-Jul-2016 | ✓ | **14-Jul-2016** | 12-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** 20 | **29-Jun-2016** | **11-Jul-2016** | 13-Jul-2016 | ✓ | **12-Jul-2016** | 20-Aug-2016 | ✓ |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EP080/071: Total Petroleum Hydrocarbons - Continued** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EP080)** | | | | | | | |
| 20 | **29-Jun-2016** | **11-Jul-2016** | 13-Jul-2016 | ✓ | **14-Jul-2016** | 13-Jul-2016 | × |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EP071)** 23b, 24b, DUP1 | **02-Jul-2016** | **11-Jul-2016** | 16-Jul-2016 | ✓ | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** 23b, 24b, DUP1 | **02-Jul-2016** | **11-Jul-2016** | 16-Jul-2016 | ✓ | **14-Jul-2016** | 16-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** DUP2, TRIP1, TRIP BLANK | **02-Jul-2016** | **12-Jul-2016** | 16-Jul-2016 | ✓ | **13-Jul-2016** | 16-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP071)** DUP2, TRIP1, TRIP BLANK | **02-Jul-2016** | **13-Jul-2016** | 16-Jul-2016 | ✓ | **14-Jul-2016** | 22-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M25 | **04-Jul-2016** | **12-Jul-2016** | 18-Jul-2016 | ✓ | **13-Jul-2016** | 18-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP071)** M25 | **04-Jul-2016** | **13-Jul-2016** | 18-Jul-2016 | ✓ | **14-Jul-2016** | 22-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M31, M37 | **05-Jul-2016** | **12-Jul-2016** | 19-Jul-2016 | ✓ | **13-Jul-2016** | 19-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP071)** M31, M37 | **05-Jul-2016** | **13-Jul-2016** | 19-Jul-2016 | ✓ | **14-Jul-2016** | 22-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M43 | **06-Jul-2016** | **12-Jul-2016** | 20-Jul-2016 | ✓ | **13-Jul-2016** | 20-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP071)** M43 | **06-Jul-2016** | **13-Jul-2016** | 20-Jul-2016 | ✓ | **14-Jul-2016** | 22-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP071)** M6 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M6 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **14-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M3 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M3 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **14-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M9 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M9 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **14-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M10 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M10 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **14-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M4 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M4 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **14-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** | | | | | | | |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued** | | | | | | | |
| M12 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M12 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **14-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M11 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M11 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **14-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M2 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M2 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **14-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M8 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M8 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **14-Jul-2016** | 10-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M5 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M5 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **14-Jul-2016** | 10-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M1 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M1 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **14-Jul-2016** | 10-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** M7 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** M7 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **14-Jul-2016** | 10-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** 18 | **27-Jun-2016** | **11-Jul-2016** | 11-Jul-2016 | ✓ | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** 18 | **27-Jun-2016** | **11-Jul-2016** | 11-Jul-2016 | ✓ | **14-Jul-2016** | 11-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** 19 | **27-Jun-2016** | **11-Jul-2016** | 11-Jul-2016 | ✓ | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** 19 | **27-Jun-2016** | **11-Jul-2016** | 11-Jul-2016 | ✓ | **14-Jul-2016** | 11-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** 21 | **28-Jun-2016** | **11-Jul-2016** | 12-Jul-2016 | ✓ | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** 21 | **28-Jun-2016** | **11-Jul-2016** | 12-Jul-2016 | ✓ | **14-Jul-2016** | 12-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** 22 | **28-Jun-2016** | **11-Jul-2016** | 12-Jul-2016 | ✓ | **12-Jul-2016** | 20-Aug-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** 22 | **28-Jun-2016** | **11-Jul-2016** | 12-Jul-2016 | ✓ | **14-Jul-2016** | 12-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** 20 | **29-Jun-2016** | **11-Jul-2016** | 13-Jul-2016 | ✓ | **12-Jul-2016** | 20-Aug-2016 | ✓ |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EP080)**<br>20 | **29-Jun-2016** | **11-Jul-2016** | 13-Jul-2016 | ✓ | **14-Jul-2016** | 13-Jul-2016 | × |
| **EP080: BTEXN** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EP080)**<br>23b, 24b, DUP1 | **02-Jul-2016** | **11-Jul-2016** | 16-Jul-2016 | ✓ | **14-Jul-2016** | 16-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)**<br>DUP2, TRIP1, TRIP BLANK | **02-Jul-2016** | **12-Jul-2016** | 16-Jul-2016 | ✓ | **13-Jul-2016** | 16-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)**<br>M25 | **04-Jul-2016** | **12-Jul-2016** | 18-Jul-2016 | ✓ | **13-Jul-2016** | 18-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)**<br>M31, M37 | **05-Jul-2016** | **12-Jul-2016** | 19-Jul-2016 | ✓ | **13-Jul-2016** | 19-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)**<br>M43 | **06-Jul-2016** | **12-Jul-2016** | 20-Jul-2016 | ✓ | **13-Jul-2016** | 20-Jul-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)**<br>M6, M3, M9, M10, M4, M12, M11, M2 | **25-Jun-2016** | **11-Jul-2016** | 09-Jul-2016 | × | **14-Jul-2016** | 09-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP080)**<br>M8, M5, M1, M7 | **26-Jun-2016** | **11-Jul-2016** | 10-Jul-2016 | × | **14-Jul-2016** | 10-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP080)**<br>18, 19 | **27-Jun-2016** | **11-Jul-2016** | 11-Jul-2016 | ✓ | **14-Jul-2016** | 11-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP080)**<br>21, 22 | **28-Jun-2016** | **11-Jul-2016** | 12-Jul-2016 | ✓ | **14-Jul-2016** | 12-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP080)**<br>20 | **29-Jun-2016** | **11-Jul-2016** | 13-Jul-2016 | ✓ | **14-Jul-2016** | 13-Jul-2016 | × |

# Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

| Quality Control Sample Type | | Count | | Rate (%) | | | Quality Control Specification |
|---|---|---|---|---|---|---|---|
| *Analytical Methods* | *Method* | *QC* | *Regular* | ***Actual*** | ***Expected*** | *Evaluation* | |
| **Laboratory Duplicates (DUP)** | | | | | | | |
| Moisture Content | EA055-103 | 3 | 27 | **11.11** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser | EK059G | 3 | 27 | **11.11** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Organic Matter | EP004 | 3 | 27 | **11.11** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM) | EP075(SIM) | 3 | 27 | **11.11** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TKN as N By Discrete Analyser | EK061G | 3 | 27 | **11.11** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 3 | 27 | **11.11** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES | EG005T | 3 | 27 | **11.11** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite X | EG020X-T | 6 | 27 | **22.22** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Y | EG020Y-T | 3 | 27 | **11.11** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Z | EG020Z-T | 3 | 27 | **11.11** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Phosporus By Discrete Analyser | EK067G | 3 | 27 | **11.11** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 3 | 27 | **11.11** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 3 | 27 | **11.11** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| **Laboratory Control Samples (LCS)** | | | | | | | |
| Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser | EK059G | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Organic Matter | EP004 | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM) | EP075(SIM) | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TKN as N By Discrete Analyser | EK061G | 4 | 27 | **14.81** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES | EG005T | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite X | EG020X-T | 4 | 27 | **14.81** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Y | EG020Y-T | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Z | EG020Z-T | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Phosporus By Discrete Analyser | EK067G | 4 | 27 | **14.81** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| **Method Blanks (MB)** | | | | | | | |
| Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser | EK059G | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Organic Matter | EP004 | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM) | EP075(SIM) | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TKN as N By Discrete Analyser | EK061G | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES | EG005T | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |

Matrix: **SOIL**

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

| Quality Control Sample Type | | Count | | Rate (%) | | | Quality Control Specification |
|---|---|---|---|---|---|---|---|
| *Analytical Methods* | *Method* | *QC* | *Regular* | ***Actual*** | ***Expected*** | *Evaluation* | |
| **Method Blanks (MB) - Continued** | | | | | | | |
| Total Metals by ICP-MS - Suite X | EG020X-T | 4 | 27 | **14.81** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Y | EG020Y-T | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Z | EG020Z-T | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Phosporus By Discrete Analyser | EK067G | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| **Matrix Spikes (MS)** | | | | | | | |
| Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser | EK059G | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Organic Matter | EP004 | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM) | EP075(SIM) | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TKN as N By Discrete Analyser | EK061G | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES | EG005T | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite X | EG020X-T | 4 | 27 | **14.81** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Y | EG020Y-T | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Z | EG020Z-T | 0 | 27 | **0.00** | **5.00** | × | NEPM 2013 B3 & ALS QC Standard |
| Total Phosporus By Discrete Analyser | EK067G | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 2 | 27 | **7.41** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |

## Brief Method Summaries

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

| Analytical Methods | Method | Matrix | Method Descriptions |
|---|---|---|---|
| Moisture Content | EA055-103 | SOIL | In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time). |
| Particle Size Analysis by Hydrometer | EA150H | SOIL | Particle Size Analysis by Hydrometer according to AS1289.3.6.3 - 2003 |
| Soil Particle Density | EA152 | SOIL | Soil Particle Density by AS 1289.3.5.1-2006 : Methods of testing soils for engineering purposes - Soil classification tests - Determination of the soil particle density of a soil - Standard method |
| Total Metals by ICP-AES | EG005T | SOIL | In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3) |
| Total Metals by ICP-MS - Suite X | EG020X-T | SOIL | In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector. |
| Total Metals by ICP-MS - Suite Y | EG020Y-T | SOIL | In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector. |
| Total Metals by ICP-MS - Suite Z | EG020Z-T | SOIL | In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector. |
| Total Mercury by FIMS | EG035T | SOIL | In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) |
| Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser | EK059G | SOIL | In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) in a water extract is determined by Chemical Reduction, and direct colourimetry by Discrete Analyser. |
| TKN as N By Discrete Analyser | EK061G | SOIL | In house: Referenced to APHA 4500-Norg-D Soil samples are digested using Kjeldahl digestion followed by determination by Discrete Analyser. |
| Total Nitrogen as N (TKN + NOx) By Discrete Analyser | EK062G | SOIL | In house: Referenced to APHA 4500 Norg/NO3- Total Nitrogen is determined as the sum of TKN and Oxidised Nitrrogen, each determined seperately as N. |
| Total Phosporus By Discrete Analyser | EK067G | SOIL | In house: Referenced to APHA 4500 P-B&F This procedure involves sulfuric acid digestion and quantification using Discrete Analyser. |
| Organic Matter | EP004 | SOIL | In house: Referenced to AS1289.4.1.1 - 1997., Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3) |

| Analytical Methods | Method | Matrix | Method Descriptions |
|---|---|---|---|
| TRH - Semivolatile Fraction | EP071 | SOIL | In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. |
| PAH/Phenols (SIM) | EP075(SIM) | SOIL | In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507) |
| TRH Volatiles/BTEX | EP080 | SOIL | In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. |

| Preparation Methods | Method | Matrix | Method Descriptions |
|---|---|---|---|
| TKN/TP Digestion | EK061/EK067 | SOIL | In house: Referenced to APHA 4500 Norg- D; APHA 4500 P - H. Macro Kjeldahl digestion. |
| 1:5 solid / water leach for soluble analytes | EN34 | SOIL | 10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis. |
| Hot Block Digest for metals in soils sediments and sludges | EN69 | SOIL | In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202) |
| Organic Matter | EP004-PR | SOIL | In house: Referenced to AS1289.4.1.1 - 1997. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3) (Method 105) |
| Methanolic Extraction of Soils for Purge and Trap | ORG16 | SOIL | In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS. |
| Tumbler Extraction of Solids | ORG17 | SOIL | In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis. |

ALS Environmental

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **Work Order** | : **EB1619150** | Page | : 1 of 7 |
| Client | : **BMT WBM GROUP LTD** | Laboratory | : Environmental Division Brisbane |
| Contact | : MR JEREMY VISSER | Contact | : John Pickering |
| Address | : PO BOX 203 SPRING HILL BRISBANE QLD 4004 | Address | : 2 Byth Street Stafford QLD Australia 4053 |
| Telephone | : +61 07 3831 6744 | Telephone | : +61 7 3552 8634 |
| Project | : B21414 Elk | Date Samples Received | : 28-Jul-2016 15:15 |
| Order number | : ---- | Date Analysis Commenced | : 29-Jul-2016 |
| C-O-C number | : ---- | Issue Date | : 09-Aug-2016 10:47 |
| Sampler | : CONOR JONES, DANIEL MORAN | | |
| Site | : ---- | | |
| Quote number | : ---- | | |
| No. of samples received | : 3 | | |
| No. of samples analysed | : 3 | | |

NATA Accredited Laboratory 825
Accredited for compliance with ISO/IEC 17025.

NATA
WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

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* |
|---|---|---|
| Dianne Blane | Laboratory Coordinator (2IC) | Newcastle - Inorganics, Mayfield West, NSW |
| Greg Vogel | Laboratory Manager | Brisbane Inorganics, Stafford, QLD |
| Matt Frost | Senior Organic Chemist | Brisbane Inorganics, Stafford, QLD |
| Matt Frost | Senior Organic Chemist | Brisbane Organics, Stafford, QLD |

## 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.

- EA150H: Soil particle density results for sample #003 fell outside the scope of AS1289.3.6.3. Results should be scrutinised accordingly.
- **This work order has been created to rebatch samples from previous ALS workorder EB1617705.**
- 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, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | Client sample ID | M25 EB1617705-024 | 16 EB1617705-028 | 17 EB1617705-029 | ---- | ---- |
|---|---|---|---|---|---|---|---|---|
| | | | Client sampling date / time | 04-Jul-2016 14:30 | 03-Jul-2016 10:00 | 03-Jul-2016 14:00 | ---- | ---- |
| Compound | CAS Number | LOR | Unit | EB1619150-001 | EB1619150-002 | EB1619150-003 | -------- | -------- |
| | | | | Result | Result | Result | ---- | ---- |
| **EA055: Moisture Content** | | | | | | | | |
| Moisture Content (dried @ 103°C) | ---- | 1 | % | ---- | 31.1 | 21.0 | ---- | ---- |
| **EA150: Particle Sizing** | | | | | | | | |
| +75µm | ---- | 1 | % | 1 | 39 | 97 | ---- | ---- |
| +150µm | ---- | 1 | % | <1 | 4 | 71 | ---- | ---- |
| +300µm | ---- | 1 | % | <1 | <1 | 28 | ---- | ---- |
| +425µm | ---- | 1 | % | <1 | <1 | 6 | ---- | ---- |
| +600µm | ---- | 1 | % | <1 | <1 | <1 | ---- | ---- |
| +1180µm | ---- | 1 | % | <1 | <1 | <1 | ---- | ---- |
| +2.36mm | ---- | 1 | % | <1 | <1 | <1 | ---- | ---- |
| +4.75mm | ---- | 1 | % | <1 | <1 | <1 | ---- | ---- |
| +9.5mm | ---- | 1 | % | <1 | <1 | <1 | ---- | ---- |
| +19.0mm | ---- | 1 | % | <1 | <1 | <1 | ---- | ---- |
| +37.5mm | ---- | 1 | % | <1 | <1 | <1 | ---- | ---- |
| +75.0mm | ---- | 1 | % | <1 | <1 | <1 | ---- | ---- |
| **EA150: Soil Classification based on Particle Size** | | | | | | | | |
| Clay (<2 µm) | ---- | 1 | % | 40 | 10 | <1 | ---- | ---- |
| Silt (2-60 µm) | ---- | 1 | % | 56 | 48 | 1 | ---- | ---- |
| Sand (0.06-2.00 mm) | ---- | 1 | % | 4 | 42 | 99 | ---- | ---- |
| Gravel (>2mm) | ---- | 1 | % | <1 | <1 | <1 | ---- | ---- |
| Cobbles (>6cm) | ---- | 1 | % | <1 | <1 | <1 | ---- | ---- |
| **EA152: Soil Particle Density** | | | | | | | | |
| ø Soil Particle Density (Clay/Silt/Sand) | ---- | 0.01 | g/cm3 | 2.72 | 2.73 | 2.24 | ---- | ---- |
| **EG005T: Total Metals by ICP-AES** | | | | | | | | |
| Aluminium | 7429-90-5 | 50 | mg/kg | ---- | 21400 | 15900 | ---- | ---- |
| Arsenic | 7440-38-2 | 5 | mg/kg | ---- | <5 | <5 | ---- | ---- |
| Barium | 7440-39-3 | 10 | mg/kg | ---- | 80 | 60 | ---- | ---- |
| Iron | 7439-89-6 | 50 | mg/kg | ---- | 40700 | 37400 | ---- | ---- |
| Strontium | 7440-24-6 | 2 | mg/kg | ---- | 99 | 71 | ---- | ---- |
| Tin | 7440-31-5 | 5 | mg/kg | ---- | <5 | <5 | ---- | ---- |
| **EG020T: Total Metals by ICP-MS** | | | | | | | | |
| Selenium | 7782-49-2 | 1 | mg/kg | ---- | <1 | <1 | ---- | ---- |
| Silver | 7440-22-4 | 0.1 | mg/kg | ---- | 0.1 | <0.1 | ---- | ---- |
| Thallium | 7440-28-0 | 0.1 | mg/kg | ---- | <0.1 | <0.1 | ---- | ---- |
| Beryllium | 7440-41-7 | 0.1 | mg/kg | ---- | 0.5 | 0.4 | ---- | ---- |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M25 EB1617705-024 | 16 EB1617705-028 | 17 EB1617705-029 | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 04-Jul-2016 14:30 | 03-Jul-2016 10:00 | 03-Jul-2016 14:00 | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1619150-001 | EB1619150-002 | EB1619150-003 | -------- | -------- |
| | | | | | Result | Result | Result | ---- | ---- |
| **EG020T: Total Metals by ICP-MS - Continued** | | | | | | | | | |
| Cadmium | 7440-43-9 | 0.1 | mg/kg | | ---- | <0.1 | <0.1 | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | mg/kg | | ---- | **20.7** | **20.6** | ---- | ---- |
| Chromium | 7440-47-3 | 0.1 | mg/kg | | ---- | **47.1** | **45.8** | ---- | ---- |
| Copper | 7440-50-8 | 0.1 | mg/kg | | ---- | **41.3** | **23.1** | ---- | ---- |
| Manganese | 7439-96-5 | 0.1 | mg/kg | | ---- | **759** | **676** | ---- | ---- |
| Molybdenum | 7439-98-7 | 0.1 | mg/kg | | ---- | **0.3** | **0.2** | ---- | ---- |
| Nickel | 7440-02-0 | 0.1 | mg/kg | | ---- | **43.4** | **47.4** | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | mg/kg | | ---- | **10.1** | **6.1** | ---- | ---- |
| Antimony | 7440-36-0 | 0.1 | mg/kg | | ---- | <0.1 | <0.1 | ---- | ---- |
| Zinc | 7440-66-6 | 0.5 | mg/kg | | ---- | **93.5** | **78.3** | ---- | ---- |
| Vanadium | 7440-62-2 | 1 | mg/kg | | ---- | **96** | **107** | ---- | ---- |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | | ---- | <0.1 | <0.1 | ---- | ---- |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | | ---- | <0.1 | **0.1** | ---- | ---- |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 20 | mg/kg | | ---- | **590** | **220** | ---- | ---- |
| **EK062: Total Nitrogen as N (TKN + NOx)** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 20 | mg/kg | | ---- | **590** | **220** | ---- | ---- |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 2 | mg/kg | | ---- | **534** | **771** | ---- | ---- |
| **EP004: Organic Matter** | | | | | | | | | |
| Organic Matter | ---- | 0.5 | % | | ---- | **1.1** | <0.5 | ---- | ---- |
| Total Organic Carbon | ---- | 0.5 | % | | ---- | **0.6** | <0.5 | ---- | ---- |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| Acenaphthylene | 208-96-8 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| Acenaphthene | 83-32-9 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| Fluorene | 86-73-7 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| Phenanthrene | 85-01-8 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| Anthracene | 120-12-7 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| Fluoranthene | 206-44-0 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| Pyrene | 129-00-0 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M25 EB1617705-024 | 16 EB1617705-028 | 17 EB1617705-029 | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 04-Jul-2016 14:30 | 03-Jul-2016 10:00 | 03-Jul-2016 14:00 | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1619150-001 | EB1619150-002 | EB1619150-003 | -------- | -------- |
| | | | | | Result | Result | Result | ---- | ---- |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Chrysene | 218-01-9 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| ^ Benzo(a)pyrene TEQ (half LOR) | ---- | 0.5 | mg/kg | | ---- | **0.6** | **0.6** | ---- | ---- |
| ^ Benzo(a)pyrene TEQ (LOR) | ---- | 0.5 | mg/kg | | ---- | **1.2** | **1.2** | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 10 | mg/kg | | ---- | <10 | <10 | ---- | ---- |
| C10 - C14 Fraction | ---- | 50 | mg/kg | | ---- | <50 | <50 | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | mg/kg | | ---- | <100 | <100 | ---- | ---- |
| C29 - C36 Fraction | ---- | 100 | mg/kg | | ---- | <100 | <100 | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | mg/kg | | ---- | <50 | <50 | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 10 | mg/kg | | ---- | <10 | <10 | ---- | ---- |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 10 | mg/kg | | ---- | <10 | <10 | ---- | ---- |
| >C10 - C16 Fraction | ---- | 50 | mg/kg | | ---- | <50 | <50 | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | mg/kg | | ---- | <100 | <100 | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | mg/kg | | ---- | <100 | <100 | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 50 | mg/kg | | ---- | <50 | <50 | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 50 | mg/kg | | ---- | <50 | <50 | ---- | ---- |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 0.2 | mg/kg | | ---- | <0.2 | <0.2 | ---- | ---- |
| Toluene | 108-88-3 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| Ethylbenzene | 100-41-4 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| meta- & para-Xylene | 108-38-3 106-42-3 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| ortho-Xylene | 95-47-6 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| ^ Sum of BTEX | ---- | 0.2 | mg/kg | | ---- | <0.2 | <0.2 | ---- | ---- |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M25 EB1617705-024 | 16 EB1617705-028 | 17 EB1617705-029 | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 04-Jul-2016 14:30 | 03-Jul-2016 10:00 | 03-Jul-2016 14:00 | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1619150-001 | EB1619150-002 | EB1619150-003 | -------- | -------- |
| | | | | | Result | Result | Result | ---- | ---- |
| **EP080: BTEXN - Continued** | | | | | | | | | |
| ^ **Total Xylenes** | 1330-20-7 | 0.5 | mg/kg | | ---- | <0.5 | <0.5 | ---- | ---- |
| **Naphthalene** | 91-20-3 | 1 | mg/kg | | ---- | <1 | <1 | ---- | ---- |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| **Phenol-d6** | 13127-88-3 | 0.5 | % | | ---- | **105** | **104** | ---- | ---- |
| **2-Chlorophenol-D4** | 93951-73-6 | 0.5 | % | | ---- | **97.7** | **98.8** | ---- | ---- |
| **2.4.6-Tribromophenol** | 118-79-6 | 0.5 | % | | ---- | **66.7** | **61.6** | ---- | ---- |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 0.5 | % | | ---- | **95.9** | **99.9** | ---- | ---- |
| **Anthracene-d10** | 1719-06-8 | 0.5 | % | | ---- | **77.6** | **76.9** | ---- | ---- |
| **4-Terphenyl-d14** | 1718-51-0 | 0.5 | % | | ---- | **85.4** | **86.6** | ---- | ---- |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 0.2 | % | | ---- | **78.7** | **75.9** | ---- | ---- |
| **Toluene-D8** | 2037-26-5 | 0.2 | % | | ---- | **82.6** | **84.6** | ---- | ---- |
| **4-Bromofluorobenzene** | 460-00-4 | 0.2 | % | | ---- | **80.3** | **80.4** | ---- | ---- |

## Surrogate Control Limits

Sub-Matrix: **SOIL**

| Compound | CAS Number | Recovery Limits (%) Low | High |
|---|---|---|---|
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | |
| **Phenol-d6** | 13127-88-3 | 35 | 155 |
| **2-Chlorophenol-D4** | 93951-73-6 | 42 | 153 |
| **2.4.6-Tribromophenol** | 118-79-6 | 26 | 157 |
| **EP075(SIM)T: PAH Surrogates** | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 34 | 157 |
| **Anthracene-d10** | 1719-06-8 | 37 | 153 |
| **4-Terphenyl-d14** | 1718-51-0 | 42 | 172 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 53 | 134 |
| **Toluene-D8** | 2037-26-5 | 60 | 131 |
| **4-Bromofluorobenzene** | 460-00-4 | 59 | 127 |

ALS Environmental

# QUALITY CONTROL REPORT

| | | | |
|---|---|---|---|
| **Work Order** | : **EB1619150** | Page | : 1 of 8 |
| Client | : **BMT WBM GROUP LTD** | Laboratory | : Environmental Division Brisbane |
| Contact | : MR JEREMY VISSER | Contact | : John Pickering |
| Address | : PO BOX 203 SPRING HILL BRISBANE QLD 4004 | Address | : 2 Byth Street Stafford QLD Australia 4053 |
| Telephone | : +61 07 3831 6744 | Telephone | : +61 7 3552 8634 |
| Project | : B21414 Elk | Date Samples Received | : 28-Jul-2016 |
| Order number | : ---- | Date Analysis Commenced | : 29-Jul-2016 |
| C-O-C number | : ---- | Issue Date | : 09-Aug-2016 |
| Sampler | : CONOR JONES, DANIEL MORAN | | |
| Site | : ---- | | |
| Quote number | : ---- | | |
| No. of samples received | : 3 | | |
| No. of samples analysed | : 3 | | |

NATA Accredited Laboratory 825
Accredited for compliance with ISO/IEC 17025.

NATA WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

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* |
|---|---|---|
| Dianne Blane | Laboratory Coordinator (2IC) | Newcastle - Inorganics, Mayfield West, NSW |
| Greg Vogel | Laboratory Manager | Brisbane Inorganics, Stafford, QLD |
| Matt Frost | Senior Organic Chemist | Brisbane Inorganics, Stafford, QLD |
| Matt Frost | Senior Organic Chemist | Brisbane Organics, Stafford, QLD |

## 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: **SOIL**

| | | | | Laboratory Duplicate (DUP) Report | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Laboratory sample ID* | *Client sample ID* | *Method: Compound* | *CAS Number* | *LOR* | *Unit* | *Original Result* | *Duplicate Result* | *RPD (%)* | *Recovery Limits (%)* |
| **EA055: Moisture Content (QC Lot: 534221)** | | | | | | | | | |
| EB1619150-002 | 16 EB1617705-028 | EA055-103: Moisture Content (dried @ 103°C) | ---- | 1 | % | 31.1 | 32.8 | 5.52 | 0% - 20% |
| EB1619170-010 | Anonymous | EA055-103: Moisture Content (dried @ 103°C) | ---- | 1 | % | 12.8 | 14.8 | 14.4 | 0% - 50% |
| **EG005T: Total Metals by ICP-AES (QC Lot: 539161)** | | | | | | | | | |
| EB1619254-009 | Anonymous | EG005T: Barium | 7440-39-3 | 10 | mg/kg | 110 | 110 | 0.00 | 0% - 50% |
| | | EG005T: Strontium | 7440-24-6 | 2 | mg/kg | 6 | 5 | 0.00 | No Limit |
| | | EG005T: Arsenic | 7440-38-2 | 5 | mg/kg | <5 | <5 | 0.00 | No Limit |
| | | EG005T: Tin | 7440-31-5 | 5 | mg/kg | <5 | <5 | 0.00 | No Limit |
| | | EG005T: Aluminium | 7429-90-5 | 50 | mg/kg | 37900 | 37800 | 0.214 | 0% - 20% |
| | | EG005T: Iron | 7439-89-6 | 50 | mg/kg | 104000 | 104000 | 0.626 | 0% - 20% |
| EB1619150-002 | 16 EB1617705-028 | EG005T: Barium | 7440-39-3 | 10 | mg/kg | 80 | 80 | 0.00 | No Limit |
| | | EG005T: Strontium | 7440-24-6 | 2 | mg/kg | 99 | 100 | 0.00 | 0% - 20% |
| | | EG005T: Arsenic | 7440-38-2 | 5 | mg/kg | <5 | <5 | 0.00 | No Limit |
| | | EG005T: Tin | 7440-31-5 | 5 | mg/kg | <5 | <5 | 0.00 | No Limit |
| | | EG005T: Aluminium | 7429-90-5 | 50 | mg/kg | 21400 | 21600 | 0.647 | 0% - 20% |
| | | EG005T: Iron | 7439-89-6 | 50 | mg/kg | 40700 | 40900 | 0.389 | 0% - 20% |
| **EG020T: Total Metals by ICP-MS (QC Lot: 539158)** | | | | | | | | | |
| EB1619150-002 | 16 EB1617705-028 | EG020X-T: Lead | 7439-92-1 | 0.1 | mg/kg | 10.1 | 9.5 | 5.85 | 0% - 20% |
| EB1619150-002 | 16 EB1617705-028 | EG020X-T: Beryllium | 7440-41-7 | 0.1 | mg/kg | 0.5 | 0.5 | 0.00 | No Limit |
| | | EG020X-T: Cobalt | 7440-48-4 | 0.1 | mg/kg | 20.7 | 21.7 | 4.78 | 0% - 20% |
| | | EG020X-T: Chromium | 7440-47-3 | 0.1 | mg/kg | 47.1 | 48.9 | 3.84 | 0% - 20% |
| | | EG020X-T: Copper | 7440-50-8 | 0.1 | mg/kg | 41.3 | 43.2 | 4.49 | 0% - 20% |
| | | EG020X-T: Manganese | 7439-96-5 | 0.1 | mg/kg | 759 | 790 | 3.99 | 0% - 20% |
| | | EG020X-T: Molybdenum | 7439-98-7 | 0.1 | mg/kg | 0.3 | 0.3 | 0.00 | No Limit |
| | | EG020X-T: Nickel | 7440-02-0 | 0.1 | mg/kg | 43.4 | 45.8 | 5.57 | 0% - 20% |

Sub-Matrix: **SOIL**

| | | | | Laboratory Duplicate (DUP) Report | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Laboratory sample ID* | *Client sample ID* | *Method: Compound* | *CAS Number* | *LOR* | *Unit* | *Original Result* | *Duplicate Result* | *RPD (%)* | *Recovery Limits (%)* |
| **EG020T: Total Metals by ICP-MS (QC Lot: 539158) - continued** | | | | | | | | | |
| EB1619150-002 | 16 EB1617705-028 | EG020X-T: Antimony | 7440-36-0 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG020X-T: Zinc | 7440-66-6 | 0.5 | mg/kg | 93.5 | 97.2 | 3.94 | 0% - 20% |
| | | EG020X-T: Vanadium | 7440-62-2 | 1 | mg/kg | 96 | 99 | 2.88 | 0% - 20% |
| **EG020T: Total Metals by ICP-MS (QC Lot: 539159)** | | | | | | | | | |
| EB1619150-002 | 16 EB1617705-028 | EG020Y-T: Thallium | 7440-28-0 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG020Y-T: Cadmium | 7440-43-9 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG020Y-T: Selenium | 7782-49-2 | 1 | mg/kg | <1 | <1 | 0.00 | No Limit |
| **EG020T: Total Metals by ICP-MS (QC Lot: 539162)** | | | | | | | | | |
| EB1619150-002 | 16 EB1617705-028 | EG020Z-T: Silver | 7440-22-4 | 0.1 | mg/kg | 0.1 | <0.1 | 0.00 | No Limit |
| **EG035T: Total Recoverable Mercury by FIMS (QC Lot: 539160)** | | | | | | | | | |
| EB1619254-009 | Anonymous | EG035T: Mercury | 7439-97-6 | 0.1 | mg/kg | 0.1 | 0.1 | 0.00 | No Limit |
| EB1619150-002 | 16 EB1617705-028 | EG035T: Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 538774)** | | | | | | | | | |
| EB1619151-030 | Anonymous | EK059G: Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| EB1619099-001 | Anonymous | EK059G: Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 541157)** | | | | | | | | | |
| EB1619150-002 | 16 EB1617705-028 | EK061G: Total Kjeldahl Nitrogen as N | ---- | 20 | mg/kg | 590 | 580 | 0.00 | 0% - 20% |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 541158)** | | | | | | | | | |
| EB1619150-002 | 16 EB1617705-028 | EK067G: Total Phosphorus as P | ---- | 2 | mg/kg | 534 | 560 | 4.73 | 0% - 20% |
| **EP004: Organic Matter (QC Lot: 533673)** | | | | | | | | | |
| EB1619150-002 | 16 EB1617705-028 | EP004: Organic Matter | ---- | 0.5 | % | 1.1 | 1.1 | 0.00 | No Limit |
| | | EP004: Total Organic Carbon | ---- | 0.5 | % | 0.6 | 0.6 | 0.00 | No Limit |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 534220)** | | | | | | | | | |
| EB1619150-002 | 16 EB1617705-028 | EP075(SIM): Naphthalene | 91-20-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Acenaphthylene | 208-96-8 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Acenaphthene | 83-32-9 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Fluorene | 86-73-7 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Phenanthrene | 85-01-8 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Anthracene | 120-12-7 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Fluoranthene | 206-44-0 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Pyrene | 129-00-0 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Chrysene | 218-01-9 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2<br>205-82-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |

Sub-Matrix: **SOIL**

| | | | | 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: 534220) - continued** | | | | | | | | | |
| EB1619150-002 | 16 EB1617705-028 | EP075(SIM): Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 534218)** | | | | | | | | | |
| EB1619150-002 | 16 EB1617705-028 | EP080: C6 - C9 Fraction | ---- | 10 | mg/kg | <10 | <10 | 0.00 | No Limit |
| EB1619170-010 | Anonymous | EP080: C6 - C9 Fraction | ---- | 10 | mg/kg | <10 | <10 | 0.00 | No Limit |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 534219)** | | | | | | | | | |
| EB1619170-010 | Anonymous | EP071: C15 - C28 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: C29 - C36 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: C10 - C14 Fraction | ---- | 50 | mg/kg | <50 | <50 | 0.00 | No Limit |
| EB1619150-002 | 16 EB1617705-028 | EP071: C15 - C28 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: C29 - C36 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: C10 - C14 Fraction | ---- | 50 | mg/kg | <50 | <50 | 0.00 | No Limit |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 534218)** | | | | | | | | | |
| EB1619150-002 | 16 EB1617705-028 | EP080: C6 - C10 Fraction | C6_C10 | 10 | mg/kg | <10 | <10 | 0.00 | No Limit |
| EB1619170-010 | Anonymous | EP080: C6 - C10 Fraction | C6_C10 | 10 | mg/kg | 13 | <10 | 26.3 | No Limit |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 534219)** | | | | | | | | | |
| EB1619170-010 | Anonymous | EP071: >C16 - C34 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: >C34 - C40 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: >C10 - C16 Fraction | ---- | 50 | mg/kg | <50 | <50 | 0.00 | No Limit |
| EB1619150-002 | 16 EB1617705-028 | EP071: >C16 - C34 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: >C34 - C40 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: >C10 - C16 Fraction | ---- | 50 | mg/kg | <50 | <50 | 0.00 | No Limit |
| **EP080: BTEXN (QC Lot: 534218)** | | | | | | | | | |
| EB1619150-002 | 16 EB1617705-028 | EP080: Benzene | 71-43-2 | 0.2 | mg/kg | <0.2 | <0.2 | 0.00 | No Limit |
| | | EP080: Toluene | 108-88-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: Ethylbenzene | 100-41-4 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: ortho-Xylene | 95-47-6 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: Naphthalene | 91-20-3 | 1 | mg/kg | <1 | <1 | 0.00 | No Limit |
| EB1619170-010 | Anonymous | EP080: Benzene | 71-43-2 | 0.2 | mg/kg | <0.2 | <0.2 | 0.00 | No Limit |
| | | EP080: Toluene | 108-88-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: Ethylbenzene | 100-41-4 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: ortho-Xylene | 95-47-6 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: Naphthalene | 91-20-3 | 1 | mg/kg | <1 | <1 | 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: **SOIL**

| | | | | 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 |
| **EG005T: Total Metals by ICP-AES (QCLot: 539161)** | | | | | | | | |
| EG005T: Aluminium | 7429-90-5 | 50 | mg/kg | <50 | ---- | ---- | ---- | ---- |
| EG005T: Arsenic | 7440-38-2 | 5 | mg/kg | <5 | 118.9 mg/kg | 96.7 | 84 | 123 |
| EG005T: Barium | 7440-39-3 | 10 | mg/kg | <10 | 105.1967 mg/kg | 94.8 | 89 | 129 |
| EG005T: Iron | 7439-89-6 | 50 | mg/kg | <50 | 34900 mg/kg | 93.9 | 70 | 120 |
| EG005T: Strontium | 7440-24-6 | 2 | mg/kg | <2 | 44.50816 mg/kg | 113 | 83 | 117 |
| EG005T: Tin | 7440-31-5 | 5 | mg/kg | <5 | 5.7 mg/kg | 91.6 | 75 | 130 |
| **EG020T: Total Metals by ICP-MS (QCLot: 539158)** | | | | | | | | |
| EG020X-T: Beryllium | 7440-41-7 | 0.1 | mg/kg | <0.1 | 0.64 mg/kg | 98.4 | 79 | 130 |
| EG020X-T: Cobalt | 7440-48-4 | 0.1 | mg/kg | <0.1 | 11.6 mg/kg | 113 | 88 | 129 |
| EG020X-T: Chromium | 7440-47-3 | 0.1 | mg/kg | <0.1 | 22.9 mg/kg | 107 | 75 | 130 |
| EG020X-T: Copper | 7440-50-8 | 0.1 | mg/kg | <0.1 | 52.9 mg/kg | 119 | 84 | 120 |
| EG020X-T: Manganese | 7439-96-5 | 0.1 | mg/kg | <0.1 | 592 mg/kg | 119 | 86 | 130 |
| EG020X-T: Molybdenum | 7439-98-7 | 0.1 | mg/kg | <0.1 | 2 mg/kg | 113 | 82 | 118 |
| EG020X-T: Nickel | 7440-02-0 | 0.1 | mg/kg | <0.1 | 16.1 mg/kg | 112 | 89 | 127 |
| EG020X-T: Lead | 7439-92-1 | 0.1 | mg/kg | <0.1 | 66.3 mg/kg | 114 | 85 | 117 |
| EG020X-T: Antimony | 7440-36-0 | 0.1 | mg/kg | <0.1 | ---- | ---- | ---- | ---- |
| EG020X-T: Zinc | 7440-66-6 | 0.5 | mg/kg | <0.5 | 187 mg/kg | 118 | 71 | 130 |
| EG020X-T: Vanadium | 7440-62-2 | 1 | mg/kg | <1 | 67.8 mg/kg | 112 | 86 | 130 |
| **EG020T: Total Metals by ICP-MS (QCLot: 539159)** | | | | | | | | |
| EG020Y-T: Selenium | 7782-49-2 | 1 | mg/kg | <1 | ---- | ---- | ---- | ---- |
| EG020Y-T: Thallium | 7440-28-0 | 0.1 | mg/kg | <0.1 | ---- | ---- | ---- | ---- |
| EG020Y-T: Cadmium | 7440-43-9 | 0.1 | mg/kg | <0.1 | 1.43 mg/kg | 117 | 81 | 121 |
| **EG020T: Total Metals by ICP-MS (QCLot: 539162)** | | | | | | | | |
| EG020Z-T: Silver | 7440-22-4 | 0.1 | mg/kg | <0.1 | 3.16 mg/kg | 72.5 | 72 | 120 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 539160)** | | | | | | | | |
| EG035T: Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | 0.09821 mg/kg | 116 | 78 | 122 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 538774)** | | | | | | | | |
| EK059G: Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | <0.1 | 2.5 mg/kg | 102 | 86 | 115 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 541157)** | | | | | | | | |
| EK061G: Total Kjeldahl Nitrogen as N | ---- | 20 | mg/kg | <20 | 877 mg/kg | 93.6 | 70 | 110 |
| | | | | <20 | 3644 mg/kg | 82.7 | 70 | 110 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 541158)** | | | | | | | | |

Sub-Matrix: **SOIL**

| 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 |
|---|---|---|---|---|---|---|---|---|
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 541158) - continued** | | | | | | | | |
| EK067G: Total Phosphorus as P | ---- | 2 | mg/kg | <2 | 766 mg/kg | 81.8 | 70 | 110 |
| | | | | <2 | 1200 mg/kg | 97.0 | 70 | 110 |
| **EP004: Organic Matter (QCLot: 533673)** | | | | | | | | |
| EP004: Organic Matter | ---- | 0.5 | % | <0.5 | 2.3 % | 88.2 | 83 | 115 |
| EP004: Total Organic Carbon | ---- | 0.5 | % | <0.5 | 1.3 % | 88.2 | 85 | 115 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 534220)** | | | | | | | | |
| EP075(SIM): Naphthalene | 91-20-3 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 98.6 | 74 | 119 |
| EP075(SIM): Acenaphthylene | 208-96-8 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 90.7 | 74 | 118 |
| EP075(SIM): Acenaphthene | 83-32-9 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 98.2 | 83 | 121 |
| EP075(SIM): Fluorene | 86-73-7 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 94.9 | 81 | 116 |
| EP075(SIM): Phenanthrene | 85-01-8 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 104 | 72 | 117 |
| EP075(SIM): Anthracene | 120-12-7 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 99.4 | 72 | 115 |
| EP075(SIM): Fluoranthene | 206-44-0 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 101 | 70 | 116 |
| EP075(SIM): Pyrene | 129-00-0 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 102 | 70 | 134 |
| EP075(SIM): Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 87.5 | 64 | 120 |
| EP075(SIM): Chrysene | 218-01-9 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 114 | 66 | 119 |
| EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2<br>205-82-3 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 82.8 | 59 | 129 |
| EP075(SIM): Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 96.6 | 70 | 129 |
| EP075(SIM): Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 84.9 | 76 | 121 |
| EP075(SIM): Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 91.7 | 53 | 135 |
| EP075(SIM): Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 93.3 | 45 | 134 |
| EP075(SIM): Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 105 | 64 | 131 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 534218)** | | | | | | | | |
| EP080: C6 - C9 Fraction | ---- | 10 | mg/kg | <10 | 16 mg/kg | 98.7 | 66 | 120 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 534219)** | | | | | | | | |
| EP071: C10 - C14 Fraction | ---- | 50 | mg/kg | <50 | 318 mg/kg | 89.7 | 79 | 123 |
| EP071: C15 - C28 Fraction | ---- | 100 | mg/kg | <100 | 531 mg/kg | 89.5 | 77 | 123 |
| EP071: C29 - C36 Fraction | ---- | 100 | mg/kg | <100 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 534218)** | | | | | | | | |
| EP080: C6 - C10 Fraction | C6_C10 | 10 | mg/kg | <10 | 18.5 mg/kg | 96.9 | 66 | 119 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 534219)** | | | | | | | | |
| EP071: >C10 - C16 Fraction | ---- | 50 | mg/kg | <50 | 428 mg/kg | 90.0 | 81 | 122 |
| EP071: >C16 - C34 Fraction | ---- | 100 | mg/kg | <100 | 395 mg/kg | 88.3 | 74 | 122 |
| EP071: >C34 - C40 Fraction | ---- | 100 | mg/kg | <100 | ---- | ---- | ---- | ---- |
| **EP080: BTEXN (QCLot: 534218)** | | | | | | | | |
| EP080: Benzene | 71-43-2 | 0.2 | mg/kg | <0.2 | 1 mg/kg | 101 | 73 | 105 |
| EP080: Toluene | 108-88-3 | 0.5 | mg/kg | <0.5 | 1 mg/kg | 92.2 | 73 | 105 |

Sub-Matrix: **SOIL**

| 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: BTEXN (QCLot: 534218) - continued** | | | | | | | | |
| EP080: Ethylbenzene | 100-41-4 | 0.5 | mg/kg | <0.5 | 1 mg/kg | 94.4 | 67 | 104 |
| EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 0.5 | mg/kg | <0.5 | 2 mg/kg | 96.6 | 66 | 106 |
| EP080: ortho-Xylene | 95-47-6 | 0.5 | mg/kg | <0.5 | 1 mg/kg | 95.9 | 68 | 105 |
| EP080: Naphthalene | 91-20-3 | 1 | mg/kg | <1 | 1 mg/kg | 92.4 | 72 | 115 |

## 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: **SOIL**

| Laboratory sample ID | Client sample ID | Method: Compound | CAS Number | Matrix Spike (MS) Report: Spike Concentration | SpikeRecovery(%): MS | Recovery Limits (%): Low | Recovery Limits (%): High |
|---|---|---|---|---|---|---|---|
| **EG005T: Total Metals by ICP-AES (QCLot: 539161)** | | | | | | | |
| EB1619150-003 | 17 EB1617705-029 | EG005T: Arsenic | 7440-38-2 | 50 mg/kg | 92.4 | 70 | 130 |
| | | EG005T: Barium | 7440-39-3 | 50 mg/kg | 117 | 70 | 130 |
| **EG020T: Total Metals by ICP-MS (QCLot: 539158)** | | | | | | | |
| EB1619150-003 | 17 EB1617705-029 | EG020X-T: Lead | 7439-92-1 | 50 mg/kg | 105 | 70 | 130 |
| EB1619150-003 | 17 EB1617705-029 | EG020X-T: Beryllium | 7440-41-7 | 5 mg/kg | 90.8 | 70 | 130 |
| | | EG020X-T: Cobalt | 7440-48-4 | 50 mg/kg | 126 | 70 | 130 |
| | | EG020X-T: Chromium | 7440-47-3 | 50 mg/kg | 119 | 70 | 130 |
| | | EG020X-T: Copper | 7440-50-8 | 50 mg/kg | 125 | 70 | 130 |
| | | EG020X-T: Manganese | 7439-96-5 | 50 mg/kg | # Not Determined | 70 | 130 |
| | | EG020X-T: Nickel | 7440-02-0 | 50 mg/kg | 120 | 70 | 130 |
| | | EG020X-T: Zinc | 7440-66-6 | 50 mg/kg | 115 | 70 | 130 |
| | | EG020X-T: Vanadium | 7440-62-2 | 50 mg/kg | 109 | 70 | 130 |
| **EG020T: Total Metals by ICP-MS (QCLot: 539159)** | | | | | | | |
| EB1619150-003 | 17 EB1617705-029 | EG020Y-T: Cadmium | 7440-43-9 | 25 mg/kg | 119 | 70 | 130 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 539160)** | | | | | | | |
| EB1619150-003 | 17 EB1617705-029 | EG035T: Mercury | 7439-97-6 | 2.5 mg/kg | 122 | 70 | 130 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 538774)** | | | | | | | |
| EB1619099-005 | Anonymous | EK059G: Nitrite + Nitrate as N (Sol.) | ---- | 2 mg/kg | 98.0 | 70 | 130 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 541157)** | | | | | | | |
| EB1619150-003 | 17 EB1617705-029 | EK061G: Total Kjeldahl Nitrogen as N | ---- | 500 mg/kg | 99.2 | 70 | 130 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 541158)** | | | | | | | |
| EB1619150-003 | 17 EB1617705-029 | | | | | | |

Sub-Matrix: **SOIL**

| | | | | Matrix Spike (MS) Report | | | |
|---|---|---|---|---|---|---|---|
| | | | | Spike | SpikeRecovery(%) | Recovery Limits (%) | |
| Laboratory sample ID | Client sample ID | Method: Compound | CAS Number | Concentration | MS | Low | High |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 541158) - continued** | | | | | | | |
| EB1619150-003 | 17 EB1617705-029 | EK067G: Total Phosphorus as P | ---- | 100 mg/kg | # Not Determined | 70 | 130 |
| **EP004: Organic Matter (QCLot: 533673)** | | | | | | | |
| EB1619150-003 | 17 EB1617705-029 | EP004: Organic Matter | ---- | 1.84 % | 81.9 | 70 | 130 |
| | | EP004: Total Organic Carbon | ---- | 1.04 % | 81.6 | 70 | 130 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 534220)** | | | | | | | |
| EB1619150-003 | 17 EB1617705-029 | EP075(SIM): Acenaphthene | 83-32-9 | 1.5 mg/kg | 92.4 | 70 | 130 |
| | | EP075(SIM): Pyrene | 129-00-0 | 1.5 mg/kg | 99.5 | 70 | 130 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 534218)** | | | | | | | |
| EB1619150-003 | 17 EB1617705-029 | EP080: C6 - C9 Fraction | ---- | 8 mg/kg | 72.3 | 70 | 130 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 534219)** | | | | | | | |
| EB1619150-003 | 17 EB1617705-029 | EP071: C10 - C14 Fraction | ---- | 318 mg/kg | 88.8 | 70 | 130 |
| | | EP071: C15 - C28 Fraction | ---- | 531 mg/kg | 89.6 | 70 | 130 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 534218)** | | | | | | | |
| EB1619150-003 | 17 EB1617705-029 | EP080: C6 - C10 Fraction | C6_C10 | 8 mg/kg | 72.0 | 70 | 130 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 534219)** | | | | | | | |
| EB1619150-003 | 17 EB1617705-029 | EP071: >C10 - C16 Fraction | ---- | 428 mg/kg | 89.7 | 70 | 130 |
| | | EP071: >C16 - C34 Fraction | ---- | 395 mg/kg | 88.6 | 70 | 130 |
| **EP080: BTEXN (QCLot: 534218)** | | | | | | | |
| EB1619150-003 | 17 EB1617705-029 | EP080: Benzene | 71-43-2 | 2 mg/kg | 75.9 | 70 | 130 |
| | | EP080: Toluene | 108-88-3 | 2 mg/kg | 71.4 | 70 | 130 |

ALS Environmental

# QA/QC Compliance Assessment to assist with Quality Review

| | | | |
|---|---|---|---|
| **Work Order** | : **EB1619150** | Page | : 1 of 8 |
| Client | : **BMT WBM GROUP LTD** | Laboratory | : Environmental Division Brisbane |
| Contact | : MR JEREMY VISSER | Telephone | : +61 7 3552 8634 |
| Project | : B21414 Elk | Date Samples Received | : 28-Jul-2016 |
| Site | : ---- | Issue Date | : 09-Aug-2016 |
| Sampler | : CONOR JONES, DANIEL MORAN | No. of samples received | : 3 |
| Order number | : ---- | No. of samples analysed | : 3 |

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

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

## Summary of Outliers

### Outliers : Quality Control Samples

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

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

### Outliers : Analysis Holding Time Compliance

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

### Outliers : Frequency of Quality Control Samples

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

## Outliers : Quality Control Samples

*Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes*

Matrix: **SOIL**

| Compound Group Name | Laboratory Sample ID | Client Sample ID | Analyte | CAS Number | Data | Limits | Comment |
|---|---|---|---|---|---|---|---|
| **Matrix Spike (MS) Recoveries** | | | | | | | |
| EG020T: Total Metals by ICP-MS | EB1619150--003 | 17 EB1617705-029 | **Manganese** | 7439-96-5 | Not Determined | ---- | **MS recovery not determined, background level greater than or equal to 4x spike level.** |
| EK067G: Total Phosphorus as P by Discrete Analyser | EB1619150--003 | 17 EB1617705-029 | **Total Phosphorus as P** | ---- | Not Determined | ---- | **MS recovery not determined, background level greater than or equal to 4x spike level.** |

## Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

| Method / Container / Client Sample ID(s) | | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Days overdue | Date analysed | Due for analysis | Days overdue |
| **EA055: Moisture Content** | | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | | |
| 16 - EB1617705-028, | 17 - EB1617705-029 | ---- | ---- | ---- | 29-Jul-2016 | 17-Jul-2016 | **12** |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | | |
| 16 - EB1617705-028, | 17 - EB1617705-029 | 04-Aug-2016 | 31-Jul-2016 | **4** | 05-Aug-2016 | 31-Jul-2016 | **5** |
| **EP004: Organic Matter** | | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | | |
| 16 - EB1617705-028, | 17 - EB1617705-029 | ---- | ---- | ---- | 02-Aug-2016 | 31-Jul-2016 | **2** |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | | |
| 16 - EB1617705-028, | 17 - EB1617705-029 | 29-Jul-2016 | 17-Jul-2016 | **12** | ---- | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | | |
| 16 - EB1617705-028, | 17 - EB1617705-029 | 29-Jul-2016 | 17-Jul-2016 | **12** | 01-Aug-2016 | 17-Jul-2016 | **15** |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | | |
| 16 - EB1617705-028, | 17 - EB1617705-029 | 29-Jul-2016 | 17-Jul-2016 | **12** | 01-Aug-2016 | 17-Jul-2016 | **15** |
| **EP080: BTEXN** | | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | | |
| 16 - EB1617705-028, | 17 - EB1617705-029 | 29-Jul-2016 | 17-Jul-2016 | **12** | 01-Aug-2016 | 17-Jul-2016 | **15** |

## Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

| Quality Control Sample Type / Method | Count | | Rate (%) | | Quality Control Specification |
|---|---|---|---|---|---|
| | QC | Regular | Actual | Expected | |
| Matrix Spikes (MS) | | | | | |
| Total Metals by ICP-MS - Suite Z | 0 | 2 | 0.00 | 5.00 | NEPM 2013 B3 & ALS QC Standard |

# Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EA055: Moisture Content** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EA055-103)** | | | | | | | |
| 16 - EB1617705-028, 17 - EB1617705-029 | **03-Jul-2016** | **----** | ---- | ---- | **29-Jul-2016** | 17-Jul-2016 | × |
| **EA150: Particle Sizing** | | | | | | | |
| **Snap Lock Bag - Friable Asbestos/PSD Bag (EA150H)** | | | | | | | |
| 16 - EB1617705-028, 17 - EB1617705-029 | **03-Jul-2016** | **----** | ---- | ---- | **03-Aug-2016** | 30-Dec-2016 | ✓ |
| **Snap Lock Bag - Friable Asbestos/PSD Bag (EA150H)** | | | | | | | |
| M25 - EB1617705-024 | **04-Jul-2016** | **----** | ---- | ---- | **03-Aug-2016** | 31-Dec-2016 | ✓ |
| **EA150: Soil Classification based on Particle Size** | | | | | | | |
| **Snap Lock Bag - Friable Asbestos/PSD Bag (EA150H)** | | | | | | | |
| 16 - EB1617705-028, 17 - EB1617705-029 | **03-Jul-2016** | **----** | ---- | ---- | **03-Aug-2016** | 30-Dec-2016 | ✓ |
| **Snap Lock Bag - Friable Asbestos/PSD Bag (EA150H)** | | | | | | | |
| M25 - EB1617705-024 | **04-Jul-2016** | **----** | ---- | ---- | **03-Aug-2016** | 31-Dec-2016 | ✓ |
| **EA152: Soil Particle Density** | | | | | | | |
| **Snap Lock Bag - Friable Asbestos/PSD Bag (EA152)** | | | | | | | |
| 16 - EB1617705-028, 17 - EB1617705-029 | **03-Jul-2016** | **----** | ---- | ---- | **03-Aug-2016** | 30-Dec-2016 | ✓ |
| **Snap Lock Bag - Friable Asbestos/PSD Bag (EA152)** | | | | | | | |
| M25 - EB1617705-024 | **04-Jul-2016** | **----** | ---- | ---- | **03-Aug-2016** | 31-Dec-2016 | ✓ |
| **EG005T: Total Metals by ICP-AES** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EG005T)** | | | | | | | |
| 16 - EB1617705-028, 17 - EB1617705-029 | **03-Jul-2016** | **04-Aug-2016** | 30-Dec-2016 | ✓ | **05-Aug-2016** | 30-Dec-2016 | ✓ |
| **EG020T: Total Metals by ICP-MS** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EG020Z-T)** | | | | | | | |
| 16 - EB1617705-028, 17 - EB1617705-029 | **03-Jul-2016** | **04-Aug-2016** | 30-Dec-2016 | ✓ | **05-Aug-2016** | 30-Dec-2016 | ✓ |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EG035T)** | | | | | | | |
| 16 - EB1617705-028, 17 - EB1617705-029 | **03-Jul-2016** | **04-Aug-2016** | 31-Jul-2016 | × | **05-Aug-2016** | 31-Jul-2016 | × |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EK059G)** | | | | | | | |
| 16 - EB1617705-028, 17 - EB1617705-029 | **03-Jul-2016** | **05-Aug-2016** | 30-Dec-2016 | ✓ | **05-Aug-2016** | 30-Dec-2016 | ✓ |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EK061G)** | | | | | | | |
| 16 - EB1617705-028, 17 - EB1617705-029 | **03-Jul-2016** | **05-Aug-2016** | 30-Dec-2016 | ✓ | **05-Aug-2016** | 30-Dec-2016 | ✓ |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EK067G)** 16 - EB1617705-028, 17 - EB1617705-029 | **03-Jul-2016** | **05-Aug-2016** | 30-Dec-2016 | ✓ | **05-Aug-2016** | 30-Dec-2016 | ✓ |
| **EP004: Organic Matter** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EP004)** 16 - EB1617705-028, 17 - EB1617705-029 | **03-Jul-2016** | **29-Jul-2016** | 31-Jul-2016 | ✓ | **02-Aug-2016** | 31-Jul-2016 | × |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EP075(SIM))** 16 - EB1617705-028, 17 - EB1617705-029 | **03-Jul-2016** | **29-Jul-2016** | 17-Jul-2016 | × | **01-Aug-2016** | 07-Sep-2016 | ✓ |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EP071)** 16 - EB1617705-028 | **03-Jul-2016** | **29-Jul-2016** | 17-Jul-2016 | × | **01-Aug-2016** | 07-Sep-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** 16 - EB1617705-028 | **03-Jul-2016** | **29-Jul-2016** | 17-Jul-2016 | × | **01-Aug-2016** | 17-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** 17 - EB1617705-029 | **03-Jul-2016** | **29-Jul-2016** | 17-Jul-2016 | × | **01-Aug-2016** | 07-Sep-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** 17 - EB1617705-029 | **03-Jul-2016** | **29-Jul-2016** | 17-Jul-2016 | × | **01-Aug-2016** | 17-Jul-2016 | × |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EP071)** 16 - EB1617705-028 | **03-Jul-2016** | **29-Jul-2016** | 17-Jul-2016 | × | **01-Aug-2016** | 07-Sep-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** 16 - EB1617705-028 | **03-Jul-2016** | **29-Jul-2016** | 17-Jul-2016 | × | **01-Aug-2016** | 17-Jul-2016 | × |
| **Soil Glass Jar - Unpreserved (EP071)** 17 - EB1617705-029 | **03-Jul-2016** | **29-Jul-2016** | 17-Jul-2016 | × | **01-Aug-2016** | 07-Sep-2016 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** 17 - EB1617705-029 | **03-Jul-2016** | **29-Jul-2016** | 17-Jul-2016 | × | **01-Aug-2016** | 17-Jul-2016 | × |
| **EP080: BTEXN** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EP080)** 16 - EB1617705-028, 17 - EB1617705-029 | **03-Jul-2016** | **29-Jul-2016** | 17-Jul-2016 | × | **01-Aug-2016** | 17-Jul-2016 | × |

# Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

| Quality Control Sample Type | | Count | | Rate (%) | | | Quality Control Specification |
|---|---|---|---|---|---|---|---|
| *Analytical Methods* | *Method* | *QC* | *Regular* | ***Actual*** | ***Expected*** | *Evaluation* | |
| **Laboratory Duplicates (DUP)** | | | | | | | |
| Moisture Content | EA055-103 | 2 | 12 | **16.67** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser | EK059G | 2 | 19 | **10.53** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Organic Matter | EP004 | 1 | 2 | **50.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM) | EP075(SIM) | 1 | 2 | **50.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TKN as N By Discrete Analyser | EK061G | 1 | 2 | **50.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 2 | 16 | **12.50** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES | EG005T | 2 | 20 | **10.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite X | EG020X-T | 2 | 2 | **100.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Y | EG020Y-T | 1 | 2 | **50.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Z | EG020Z-T | 1 | 2 | **50.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Phosporus By Discrete Analyser | EK067G | 1 | 2 | **50.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 2 | 12 | **16.67** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 2 | 12 | **16.67** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| **Laboratory Control Samples (LCS)** | | | | | | | |
| Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser | EK059G | 1 | 19 | **5.26** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Organic Matter | EP004 | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM) | EP075(SIM) | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TKN as N By Discrete Analyser | EK061G | 2 | 2 | **100.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 1 | 16 | **6.25** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES | EG005T | 1 | 20 | **5.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite X | EG020X-T | 2 | 2 | **100.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Y | EG020Y-T | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Z | EG020Z-T | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Phosporus By Discrete Analyser | EK067G | 2 | 2 | **100.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 1 | 12 | **8.33** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 1 | 12 | **8.33** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| **Method Blanks (MB)** | | | | | | | |
| Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser | EK059G | 1 | 19 | **5.26** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Organic Matter | EP004 | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM) | EP075(SIM) | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TKN as N By Discrete Analyser | EK061G | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 1 | 16 | **6.25** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES | EG005T | 1 | 20 | **5.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |

Matrix: **SOIL**

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

| Quality Control Sample Type | | Count | | Rate (%) | | | Quality Control Specification |
|---|---|---|---|---|---|---|---|
| *Analytical Methods* | *Method* | *QC* | *Regular* | ***Actual*** | ***Expected*** | *Evaluation* | |
| **Method Blanks (MB) - Continued** | | | | | | | |
| Total Metals by ICP-MS - Suite X | EG020X-T | 2 | 2 | **100.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Y | EG020Y-T | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Z | EG020Z-T | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Phosporus By Discrete Analyser | EK067G | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 1 | 12 | **8.33** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 1 | 12 | **8.33** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| **Matrix Spikes (MS)** | | | | | | | |
| Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser | EK059G | 1 | 19 | **5.26** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Organic Matter | EP004 | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM) | EP075(SIM) | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TKN as N By Discrete Analyser | EK061G | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 1 | 16 | **6.25** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES | EG005T | 1 | 20 | **5.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite X | EG020X-T | 2 | 2 | **100.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Y | EG020Y-T | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Z | EG020Z-T | 0 | 2 | **0.00** | **5.00** | × | NEPM 2013 B3 & ALS QC Standard |
| Total Phosporus By Discrete Analyser | EK067G | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 1 | 12 | **8.33** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 1 | 12 | **8.33** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |

## Brief Method Summaries

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

| Analytical Methods | Method | Matrix | Method Descriptions |
|---|---|---|---|
| Moisture Content | EA055-103 | SOIL | In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time). |
| Particle Size Analysis by Hydrometer | EA150H | SOIL | Particle Size Analysis by Hydrometer according to AS1289.3.6.3 - 2003 |
| Soil Particle Density | * EA152 | SOIL | Soil Particle Density by AS 1289.3.5.1-2006 : Methods of testing soils for engineering purposes - Soil classification tests - Determination of the soil particle density of a soil - Standard method |
| Total Metals by ICP-AES | EG005T | SOIL | In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3) |
| Total Metals by ICP-MS - Suite X | EG020X-T | SOIL | In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector. |
| Total Metals by ICP-MS - Suite Y | EG020Y-T | SOIL | In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector. |
| Total Metals by ICP-MS - Suite Z | EG020Z-T | SOIL | In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector. |
| Total Mercury by FIMS | EG035T | SOIL | In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) |
| Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser | EK059G | SOIL | In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) in a water extract is determined by Chemical Reduction, and direct colourimetry by Discrete Analyser. |
| TKN as N By Discrete Analyser | EK061G | SOIL | In house: Referenced to APHA 4500-Norg-D Soil samples are digested using Kjeldahl digestion followed by determination by Discrete Analyser. |
| Total Nitrogen as N (TKN + NOx) By Discrete Analyser | EK062G | SOIL | In house: Referenced to APHA 4500 Norg/NO3- Total Nitrogen is determined as the sum of TKN and Oxidised Nitrrogen, each determined seperately as N. |
| Total Phosporus By Discrete Analyser | EK067G | SOIL | In house: Referenced to APHA 4500 P-B&F This procedure involves sulfuric acid digestion and quantification using Discrete Analyser. |
| Organic Matter | EP004 | SOIL | In house: Referenced to AS1289.4.1.1 - 1997., Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3) |

| Analytical Methods | Method | Matrix | Method Descriptions |
|---|---|---|---|
| TRH - Semivolatile Fraction | EP071 | SOIL | In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. |
| PAH/Phenols (SIM) | EP075(SIM) | SOIL | In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507) |
| TRH Volatiles/BTEX | EP080 | SOIL | In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. |

| Preparation Methods | Method | Matrix | Method Descriptions |
|---|---|---|---|
| TKN/TP Digestion | EK061/EK067 | SOIL | In house: Referenced to APHA 4500 Norg- D; APHA 4500 P - H. Macro Kjeldahl digestion. |
| 1:5 solid / water leach for soluble analytes | EN34 | SOIL | 10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis. |
| Hot Block Digest for metals in soils sediments and sludges | EN69 | SOIL | In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202) |
| Organic Matter | EP004-PR | SOIL | In house: Referenced to AS1289.4.1.1 - 1997. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3) (Method 105) |
| Methanolic Extraction of Soils for Purge and Trap | ORG16 | SOIL | In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS. |
| Tumbler Extraction of Solids | ORG17 | SOIL | In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis. |

ALS Environmental

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **Work Order** | : **EB1702000** | Page | : 1 of 7 |
| Client | : **BMT WBM GROUP LTD** | Laboratory | : Environmental Division Brisbane |
| Contact | : MR JEREMY VISSER | Contact | : Customer Services EB |
| Address | : PO BOX 203 SPRING HILL BRISBANE QLD 4004 | Address | : 2 Byth Street Stafford QLD Australia 4053 |
| Telephone | : +61 07 3831 6744 | Telephone | : +61-7-3243 7222 |
| Project | : B21414 Elk | Date Samples Received | : 02-Feb-2017 11:30 |
| Order number | : ---- | Date Analysis Commenced | : 02-Feb-2017 |
| C-O-C number | : ---- | Issue Date | : 23-Feb-2017 21:26 |
| Sampler | : BRAD HILES, DANIEL MORAN | | |
| Site | : ---- | | |
| Quote number | : BN/250/15 V5 | | |
| No. of samples received | : 3 | | |
| No. of samples analysed | : 3 | | |

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* |
|---|---|---|
| Diana Mesa | 2IC Organic Chemist | Brisbane Organics, Stafford, QLD |
| Greg Vogel | Laboratory Manager | Brisbane Inorganics, Stafford, QLD |
| Satishkumar Trivedi | Acid Sulfate Soils Supervisor | Brisbane Acid Sulphate Soils, Stafford, QLD |
| Satishkumar Trivedi | Acid Sulfate Soils Supervisor | Brisbane Inorganics, Stafford, QLD |

## 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 no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

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.

- EK061G (Total Kjeldahl Nitrogen): Sample EB1702000-001 (M45) shows poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.
- EP075(SIM): High LCS recovery deemed acceptable as all associated analyte results are less than LOR.
- 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, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M45 | M46 | Trip blank | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 15:00 | 16-Jan-2017 14:00 | 16-Jan-2017 15:00 | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1702000-001 | EB1702000-002 | EB1702000-003 | -------- | -------- |
| | | | | | Result | Result | Result | ---- | ---- |
| **EA055: Moisture Content** | | | | | | | | | |
| Moisture Content (dried @ 103°C) | ---- | 1 | % | | 28.6 | 53.4 | ---- | ---- | ---- |
| **EA150: Particle Sizing** | | | | | | | | | |
| +75µm | ---- | 1 | % | | 91 | <1 | ---- | ---- | ---- |
| +150µm | ---- | 1 | % | | 80 | <1 | ---- | ---- | ---- |
| +300µm | ---- | 1 | % | | 11 | <1 | ---- | ---- | ---- |
| +425µm | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| +600µm | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| +1180µm | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| +2.36mm | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| +4.75mm | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| +9.5mm | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| +19.0mm | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| +37.5mm | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| +75.0mm | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| **EA150: Soil Classification based on Particle Size** | | | | | | | | | |
| Clay (<2 µm) | ---- | 1 | % | | 6 | 23 | ---- | ---- | ---- |
| Silt (2-60 µm) | ---- | 1 | % | | 3 | 74 | ---- | ---- | ---- |
| Sand (0.06-2.00 mm) | ---- | 1 | % | | 91 | 3 | ---- | ---- | ---- |
| Gravel (>2mm) | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| Cobbles (>6cm) | ---- | 1 | % | | <1 | <1 | ---- | ---- | ---- |
| **EA152: Soil Particle Density** | | | | | | | | | |
| Soil Particle Density (Clay/Silt/Sand) | ---- | 0.01 | g/cm3 | | 2.57 | 2.22 | ---- | ---- | ---- |
| **EG005T: Total Metals by ICP-AES** | | | | | | | | | |
| Aluminium | 7429-90-5 | 50 | mg/kg | | 20100 | 33400 | ---- | ---- | ---- |
| Arsenic | 7440-38-2 | 5 | mg/kg | | 5 | 10 | ---- | ---- | ---- |
| Barium | 7440-39-3 | 10 | mg/kg | | 50 | 30 | ---- | ---- | ---- |
| Iron | 7439-89-6 | 50 | mg/kg | | 41400 | 55300 | ---- | ---- | ---- |
| Strontium | 7440-24-6 | 2 | mg/kg | | 51 | 88 | ---- | ---- | ---- |
| Tin | 7440-31-5 | 5 | mg/kg | | <5 | <5 | ---- | ---- | ---- |
| **EG020T: Total Metals by ICP-MS** | | | | | | | | | |
| Selenium | 7782-49-2 | 1 | mg/kg | | <1 | <1 | ---- | ---- | ---- |
| Silver | 7440-22-4 | 0.1 | mg/kg | | <0.1 | <0.1 | ---- | ---- | ---- |
| Thallium | 7440-28-0 | 0.1 | mg/kg | | <0.1 | <0.1 | ---- | ---- | ---- |
| Beryllium | 7440-41-7 | 0.1 | mg/kg | | 0.5 | 0.7 | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M45 | M46 | Trip blank | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 15:00 | 16-Jan-2017 14:00 | 16-Jan-2017 15:00 | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1702000-001 | EB1702000-002 | EB1702000-003 | -------- | -------- |
| | | | | | Result | Result | Result | ---- | ---- |
| **EG020T: Total Metals by ICP-MS - Continued** | | | | | | | | | |
| Cadmium | 7440-43-9 | 0.1 | mg/kg | | <0.1 | <0.1 | ---- | ---- | ---- |
| Cobalt | 7440-48-4 | 0.1 | mg/kg | | **22.4** | **21.1** | ---- | ---- | ---- |
| Chromium | 7440-47-3 | 0.1 | mg/kg | | **41.6** | **56.6** | ---- | ---- | ---- |
| Copper | 7440-50-8 | 0.1 | mg/kg | | **22.9** | **53.0** | ---- | ---- | ---- |
| Manganese | 7439-96-5 | 0.1 | mg/kg | | **621** | **836** | ---- | ---- | ---- |
| Molybdenum | 7439-98-7 | 0.1 | mg/kg | | **0.2** | **0.4** | ---- | ---- | ---- |
| Nickel | 7440-02-0 | 0.1 | mg/kg | | **39.8** | **46.4** | ---- | ---- | ---- |
| Lead | 7439-92-1 | 0.1 | mg/kg | | **8.7** | **13.2** | ---- | ---- | ---- |
| Antimony | 7440-36-0 | 0.1 | mg/kg | | <0.1 | **0.1** | ---- | ---- | ---- |
| Zinc | 7440-66-6 | 0.5 | mg/kg | | **66.0** | **93.5** | ---- | ---- | ---- |
| Vanadium | 7440-62-2 | 1 | mg/kg | | **84** | **110** | ---- | ---- | ---- |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.1 | mg/kg | | <0.1 | <0.1 | ---- | ---- | ---- |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | | **1.5** | <0.1 | ---- | ---- | ---- |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 20 | mg/kg | | **420** | **710** | ---- | ---- | ---- |
| **EK062: Total Nitrogen as N (TKN + NOx)** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 20 | mg/kg | | **420** | **710** | ---- | ---- | ---- |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 2 | mg/kg | | **682** | **505** | ---- | ---- | ---- |
| **EP004: Organic Matter** | | | | | | | | | |
| Organic Matter | ---- | 0.5 | % | | **0.5** | **3.2** | ---- | ---- | ---- |
| Total Organic Carbon | ---- | 0.5 | % | | <0.5 | **1.8** | ---- | ---- | ---- |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| Acenaphthylene | 208-96-8 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| Acenaphthene | 83-32-9 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| Fluorene | 86-73-7 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| Phenanthrene | 85-01-8 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| Anthracene | 120-12-7 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| Fluoranthene | 206-44-0 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| Pyrene | 129-00-0 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M45 | M46 | Trip blank | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 15:00 | 16-Jan-2017 14:00 | 16-Jan-2017 15:00 | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1702000-001 | EB1702000-002 | EB1702000-003 | -------- | -------- |
| | | | | | Result | Result | Result | ---- | ---- |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Chrysene | 218-01-9 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | mg/kg | | <0.5 | <0.5 | ---- | ---- | ---- |
| ^ Benzo(a)pyrene TEQ (half LOR) | ---- | 0.5 | mg/kg | | **0.6** | **0.6** | ---- | ---- | ---- |
| ^ Benzo(a)pyrene TEQ (LOR) | ---- | 0.5 | mg/kg | | **1.2** | **1.2** | ---- | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 10 | mg/kg | | <10 | <10 | <10 | ---- | ---- |
| C10 - C14 Fraction | ---- | 50 | mg/kg | | <50 | <50 | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | mg/kg | | <100 | <100 | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 100 | mg/kg | | <100 | <100 | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | mg/kg | | <50 | <50 | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 10 | mg/kg | | <10 | <10 | <10 | ---- | ---- |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 10 | mg/kg | | <10 | <10 | <10 | ---- | ---- |
| >C10 - C16 Fraction | ---- | 50 | mg/kg | | <50 | <50 | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | mg/kg | | <100 | <100 | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | mg/kg | | <100 | <100 | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 50 | mg/kg | | <50 | <50 | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 50 | mg/kg | | <50 | <50 | ---- | ---- | ---- |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 0.2 | mg/kg | | <0.2 | <0.2 | <0.2 | ---- | ---- |
| Toluene | 108-88-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | ---- | ---- |
| Ethylbenzene | 100-41-4 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | ---- | ---- |
| meta- & para-Xylene | 108-38-3 106-42-3 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | ---- | ---- |
| ortho-Xylene | 95-47-6 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | ---- | ---- |
| ^ Sum of BTEX | ---- | 0.2 | mg/kg | | <0.2 | <0.2 | <0.2 | ---- | ---- |
| ^ Total Xylenes | 1330-20-7 | 0.5 | mg/kg | | <0.5 | <0.5 | <0.5 | ---- | ---- |

## Analytical Results

| Sub-Matrix: SOIL (Matrix: SOIL) | | | | Client sample ID | M45 | M46 | Trip blank | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 15:00 | 16-Jan-2017 14:00 | 16-Jan-2017 15:00 | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1702000-001 | EB1702000-002 | EB1702000-003 | -------- | -------- |
| | | | | | Result | Result | Result | ---- | ---- |
| **EP080: BTEXN - Continued** | | | | | | | | | |
| **Naphthalene** | 91-20-3 | 1 | mg/kg | | <1 | <1 | <1 | ---- | ---- |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| **Phenol-d6** | 13127-88-3 | 0.5 | % | | **99.4** | **92.7** | ---- | ---- | ---- |
| **2-Chlorophenol-D4** | 93951-73-6 | 0.5 | % | | **101** | **90.0** | ---- | ---- | ---- |
| **2.4.6-Tribromophenol** | 118-79-6 | 0.5 | % | | **90.8** | **92.3** | ---- | ---- | ---- |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 0.5 | % | | **99.0** | **90.8** | ---- | ---- | ---- |
| **Anthracene-d10** | 1719-06-8 | 0.5 | % | | **101** | **98.6** | ---- | ---- | ---- |
| **4-Terphenyl-d14** | 1718-51-0 | 0.5 | % | | **103** | **102** | ---- | ---- | ---- |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 0.2 | % | | **72.5** | **69.1** | **92.2** | ---- | ---- |
| **Toluene-D8** | 2037-26-5 | 0.2 | % | | **69.2** | **68.2** | **84.2** | ---- | ---- |
| **4-Bromofluorobenzene** | 460-00-4 | 0.2 | % | | **77.9** | **72.5** | **92.2** | ---- | ---- |

## Surrogate Control Limits

Sub-Matrix: **SOIL**

| Compound | CAS Number | Recovery Limits (%) Low | High |
|---|---|---|---|
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | |
| **Phenol-d6** | 13127-88-3 | 35 | 155 |
| **2-Chlorophenol-D4** | 93951-73-6 | 42 | 153 |
| **2.4.6-Tribromophenol** | 118-79-6 | 26 | 157 |
| **EP075(SIM)T: PAH Surrogates** | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 34 | 157 |
| **Anthracene-d10** | 1719-06-8 | 37 | 153 |
| **4-Terphenyl-d14** | 1718-51-0 | 42 | 172 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 53 | 134 |
| **Toluene-D8** | 2037-26-5 | 60 | 131 |
| **4-Bromofluorobenzene** | 460-00-4 | 59 | 127 |

ALS Environmental

# QUALITY CONTROL REPORT

| | | | |
|---|---|---|---|
| **Work Order** | : **EB1702000** | Page | : 1 of 8 |
| Client | : **BMT WBM GROUP LTD** | Laboratory | : Environmental Division Brisbane |
| Contact | : MR JEREMY VISSER | Contact | : Customer Services EB |
| Address | : PO BOX 203 SPRING HILL<br>BRISBANE QLD 4004 | Address | : 2 Byth Street Stafford QLD Australia 4053 |
| Telephone | : +61 07 3831 6744 | Telephone | : +61-7-3243 7222 |
| Project | : B21414 Elk | Date Samples Received | : 02-Feb-2017 |
| Order number | : ---- | Date Analysis Commenced | : 02-Feb-2017 |
| C-O-C number | : ---- | Issue Date | : 23-Feb-2017 |
| Sampler | : BRAD HILES, DANIEL MORAN | | |
| Site | : ---- | | |
| Quote number | : BN/250/15 V5 | | |
| No. of samples received | : 3 | | |
| No. of samples analysed | : 3 | | |

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 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* |
|---|---|---|
| Diana Mesa | 2IC Organic Chemist | Brisbane Organics, Stafford, QLD |
| Greg Vogel | Laboratory Manager | Brisbane Inorganics, Stafford, QLD |
| Satishkumar Trivedi | Acid Sulfate Soils Supervisor | Brisbane Acid Sulphate Soils, Stafford, QLD |
| Satishkumar Trivedi | Acid Sulfate Soils Supervisor | Brisbane Inorganics, Stafford, QLD |

## 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: **SOIL**

| | | | | Laboratory Duplicate (DUP) Report | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Laboratory sample ID* | *Client sample ID* | *Method: Compound* | *CAS Number* | *LOR* | *Unit* | *Original Result* | *Duplicate Result* | *RPD (%)* | *Recovery Limits (%)* |
| **EA055: Moisture Content (QC Lot: 741422)** | | | | | | | | | |
| EB1702000-001 | M45 | EA055-103: Moisture Content (dried @ 103°C) | ---- | 1 | % | 28.6 | 28.1 | 1.68 | 0% - 20% |
| **EG005T: Total Metals by ICP-AES (QC Lot: 741414)** | | | | | | | | | |
| EB1702000-001 | M45 | EG005T: Strontium | 7440-24-6 | 2 | mg/kg | 51 | 51 | 0.00 | 0% - 20% |
| EB1702000-001 | M45 | EG005T: Barium | 7440-39-3 | 10 | mg/kg | 50 | 50 | 0.00 | No Limit |
| | | EG005T: Arsenic | 7440-38-2 | 5 | mg/kg | 5 | 6 | 0.00 | No Limit |
| | | EG005T: Tin | 7440-31-5 | 5 | mg/kg | <5 | <5 | 0.00 | No Limit |
| | | EG005T: Aluminium | 7429-90-5 | 50 | mg/kg | 20100 | 20400 | 1.53 | 0% - 20% |
| | | EG005T: Iron | 7439-89-6 | 50 | mg/kg | 41400 | 41300 | 0.265 | 0% - 20% |
| **EG020T: Total Metals by ICP-MS (QC Lot: 741416)** | | | | | | | | | |
| EB1702000-001 | M45 | EG020X-T: Beryllium | 7440-41-7 | 0.1 | mg/kg | 0.5 | 0.5 | 0.00 | No Limit |
| | | EG020X-T: Cobalt | 7440-48-4 | 0.1 | mg/kg | 22.4 | 22.8 | 1.71 | 0% - 20% |
| | | EG020X-T: Chromium | 7440-47-3 | 0.1 | mg/kg | 41.6 | 41.5 | 0.379 | 0% - 20% |
| | | EG020X-T: Copper | 7440-50-8 | 0.1 | mg/kg | 22.9 | 23.1 | 0.711 | 0% - 20% |
| | | EG020X-T: Manganese | 7439-96-5 | 0.1 | mg/kg | 621 | 606 | 2.48 | 0% - 20% |
| | | EG020X-T: Molybdenum | 7439-98-7 | 0.1 | mg/kg | 0.2 | 0.2 | 0.00 | No Limit |
| | | EG020X-T: Nickel | 7440-02-0 | 0.1 | mg/kg | 39.8 | 39.6 | 0.426 | 0% - 20% |
| | | EG020X-T: Lead | 7439-92-1 | 0.1 | mg/kg | 8.7 | 9.0 | 3.48 | 0% - 20% |
| | | EG020X-T: Antimony | 7440-36-0 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG020X-T: Zinc | 7440-66-6 | 0.5 | mg/kg | 66.0 | 65.6 | 0.567 | 0% - 20% |
| | | EG020X-T: Vanadium | 7440-62-2 | 1 | mg/kg | 84 | 83 | 0.00 | 0% - 20% |
| **EG020T: Total Metals by ICP-MS (QC Lot: 741417)** | | | | | | | | | |
| EB1702000-001 | M45 | EG020Y-T: Thallium | 7440-28-0 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG020Y-T: Cadmium | 7440-43-9 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG020Y-T: Selenium | 7782-49-2 | 1 | mg/kg | <1 | <1 | 0.00 | No Limit |

Sub-Matrix: **SOIL**

| | | | | Laboratory Duplicate (DUP) Report | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Laboratory sample ID* | *Client sample ID* | *Method: Compound* | *CAS Number* | *LOR* | *Unit* | *Original Result* | *Duplicate Result* | *RPD (%)* | *Recovery Limits (%)* |
| **EG020T: Total Metals by ICP-MS (QC Lot: 741418)** | | | | | | | | | |
| EB1702000-001 | M45 | EG020Z-T: Silver | 7440-22-4 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| **EG035T: Total Recoverable Mercury by FIMS (QC Lot: 741415)** | | | | | | | | | |
| EB1702000-001 | M45 | EG035T: Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | <0.1 | 0.00 | No Limit |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 741421)** | | | | | | | | | |
| EB1702000-001 | M45 | EK059G: Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | 1.5 | 1.5 | 0.00 | 0% - 50% |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 741420)** | | | | | | | | | |
| EB1702000-001 | M45 | EK061G: Total Kjeldahl Nitrogen as N | ---- | 20 | mg/kg | 420 | # 310 | 30.6 | 0% - 20% |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 741419)** | | | | | | | | | |
| EB1702000-001 | M45 | EK067G: Total Phosphorus as P | ---- | 2 | mg/kg | 682 | 638 | 6.64 | 0% - 20% |
| **EP004: Organic Matter (QC Lot: 741917)** | | | | | | | | | |
| EB1702000-001 | M45 | EP004: Organic Matter | ---- | 0.5 | % | 0.5 | <0.5 | 0.00 | No Limit |
| | | EP004: Total Organic Carbon | ---- | 0.5 | % | <0.5 | <0.5 | 0.00 | No Limit |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 741307)** | | | | | | | | | |
| EB1702000-001 | M45 | EP075(SIM): Naphthalene | 91-20-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Acenaphthylene | 208-96-8 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Acenaphthene | 83-32-9 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Fluorene | 86-73-7 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Phenanthrene | 85-01-8 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Anthracene | 120-12-7 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Fluoranthene | 206-44-0 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Pyrene | 129-00-0 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Chrysene | 218-01-9 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2<br>205-82-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP075(SIM): Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 741306)** | | | | | | | | | |
| EB1702000-001 | M45 | EP080: C6 - C9 Fraction | ---- | 10 | mg/kg | <10 | <10 | 0.00 | No Limit |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 741308)** | | | | | | | | | |
| EB1702000-001 | M45 | EP071: C15 - C28 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: C29 - C36 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: C10 - C14 Fraction | ---- | 50 | mg/kg | <50 | <50 | 0.00 | No Limit |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 741306)** | | | | | | | | | |

Sub-Matrix: **SOIL**

| | | | | Laboratory Duplicate (DUP) Report | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Laboratory sample ID* | *Client sample ID* | *Method: Compound* | *CAS Number* | *LOR* | *Unit* | *Original Result* | *Duplicate Result* | *RPD (%)* | *Recovery Limits (%)* |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 741306) - continued** | | | | | | | | | |
| EB1702000-001 | M45 | EP080: C6 - C10 Fraction | C6_C10 | 10 | mg/kg | <10 | <10 | 0.00 | No Limit |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 741308)** | | | | | | | | | |
| EB1702000-001 | M45 | EP071: >C16 - C34 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: >C34 - C40 Fraction | ---- | 100 | mg/kg | <100 | <100 | 0.00 | No Limit |
| | | EP071: >C10 - C16 Fraction | ---- | 50 | mg/kg | <50 | <50 | 0.00 | No Limit |
| **EP080: BTEXN (QC Lot: 741306)** | | | | | | | | | |
| EB1702000-001 | M45 | EP080: Benzene | 71-43-2 | 0.2 | mg/kg | <0.2 | <0.2 | 0.00 | No Limit |
| | | EP080: Toluene | 108-88-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: Ethylbenzene | 100-41-4 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: ortho-Xylene | 95-47-6 | 0.5 | mg/kg | <0.5 | <0.5 | 0.00 | No Limit |
| | | EP080: Naphthalene | 91-20-3 | 1 | mg/kg | <1 | <1 | 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: **SOIL**

| | | | | 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 |
| **EG005T: Total Metals by ICP-AES (QCLot: 741414)** | | | | | | | | |
| EG005T: Aluminium | 7429-90-5 | 50 | mg/kg | <50 | ---- | ---- | ---- | ---- |
| EG005T: Arsenic | 7440-38-2 | 5 | mg/kg | <5 | 118.9 mg/kg | 101 | 84 | 123 |
| EG005T: Barium | 7440-39-3 | 10 | mg/kg | <10 | 105.1967 mg/kg | 103 | 89 | 129 |
| EG005T: Iron | 7439-89-6 | 50 | mg/kg | <50 | 34900 mg/kg | 104 | 70 | 120 |
| EG005T: Strontium | 7440-24-6 | 2 | mg/kg | <2 | 68.55697 mg/kg | 88.3 | 83 | 117 |
| EG005T: Tin | 7440-31-5 | 5 | mg/kg | <5 | 5.7 mg/kg | 108 | 75 | 130 |
| **EG020T: Total Metals by ICP-MS (QCLot: 741416)** | | | | | | | | |
| EG020X-T: Beryllium | 7440-41-7 | 0.1 | mg/kg | <0.1 | 0.64 mg/kg | 104 | 79 | 130 |
| EG020X-T: Cobalt | 7440-48-4 | 0.1 | mg/kg | <0.1 | 11.6 mg/kg | 116 | 88 | 129 |
| EG020X-T: Chromium | 7440-47-3 | 0.1 | mg/kg | <0.1 | 22.9 mg/kg | 113 | 75 | 130 |
| EG020X-T: Copper | 7440-50-8 | 0.1 | mg/kg | <0.1 | 52.9 mg/kg | 109 | 84 | 120 |
| EG020X-T: Manganese | 7439-96-5 | 0.1 | mg/kg | <0.1 | 592 mg/kg | 111 | 86 | 130 |
| EG020X-T: Molybdenum | 7439-98-7 | 0.1 | mg/kg | <0.1 | 2 mg/kg | 103 | 82 | 118 |
| EG020X-T: Nickel | 7440-02-0 | 0.1 | mg/kg | <0.1 | 16.1 mg/kg | 105 | 89 | 127 |
| EG020X-T: Lead | 7439-92-1 | 0.1 | mg/kg | <0.1 | 66.3 mg/kg | 116 | 85 | 117 |
| EG020X-T: Antimony | 7440-36-0 | 0.1 | mg/kg | <0.1 | ---- | ---- | ---- | ---- |
| EG020X-T: Zinc | 7440-66-6 | 0.5 | mg/kg | <0.5 | 187 mg/kg | 108 | 71 | 130 |
| EG020X-T: Vanadium | 7440-62-2 | 1 | mg/kg | <1 | 67.8 mg/kg | 116 | 86 | 130 |
| **EG020T: Total Metals by ICP-MS (QCLot: 741417)** | | | | | | | | |
| EG020Y-T: Selenium | 7782-49-2 | 1 | mg/kg | <1 | ---- | ---- | ---- | ---- |
| EG020Y-T: Thallium | 7440-28-0 | 0.1 | mg/kg | <0.1 | ---- | ---- | ---- | ---- |
| EG020Y-T: Cadmium | 7440-43-9 | 0.1 | mg/kg | <0.1 | 1.43 mg/kg | 108 | 81 | 121 |
| **EG020T: Total Metals by ICP-MS (QCLot: 741418)** | | | | | | | | |
| EG020Z-T: Silver | 7440-22-4 | 0.1 | mg/kg | <0.1 | 3.16 mg/kg | 96.5 | 72 | 120 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 741415)** | | | | | | | | |
| EG035T: Mercury | 7439-97-6 | 0.1 | mg/kg | <0.1 | 0.09821 mg/kg | 105 | 78 | 122 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 741421)** | | | | | | | | |
| EK059G: Nitrite + Nitrate as N (Sol.) | ---- | 0.1 | mg/kg | <0.1 | 2.5 mg/kg | 96.8 | 86 | 115 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 741420)** | | | | | | | | |
| EK061G: Total Kjeldahl Nitrogen as N | ---- | 20 | mg/kg | <20 | 877 mg/kg | 90.8 | 70 | 110 |
| | | | | <20 | 3644 mg/kg | 97.5 | 70 | 110 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 741419)** | | | | | | | | |

Sub-Matrix: **SOIL**

| 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 |
|---|---|---|---|---|---|---|---|---|
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 741419) - continued** | | | | | | | | |
| EK067G: Total Phosphorus as P | ---- | 2 | mg/kg | <2 | 766 mg/kg | 92.2 | 70 | 110 |
| | | | | <2 | 1200 mg/kg | 110 | 70 | 110 |
| **EP004: Organic Matter (QCLot: 741917)** | | | | | | | | |
| EP004: Organic Matter | ---- | 0.5 | % | <0.5 | 80 % | 89.0 | 83 | 115 |
| EP004: Total Organic Carbon | ---- | 0.5 | % | <0.5 | 46.4 % | 89.0 | 85 | 115 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 741307)** | | | | | | | | |
| EP075(SIM): Naphthalene | 91-20-3 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 102 | 74 | 119 |
| EP075(SIM): Acenaphthylene | 208-96-8 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 111 | 74 | 118 |
| EP075(SIM): Acenaphthene | 83-32-9 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 106 | 83 | 121 |
| EP075(SIM): Fluorene | 86-73-7 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 109 | 81 | 116 |
| EP075(SIM): Phenanthrene | 85-01-8 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 105 | 72 | 117 |
| EP075(SIM): Anthracene | 120-12-7 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 114 | 72 | 115 |
| EP075(SIM): Fluoranthene | 206-44-0 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 108 | 70 | 116 |
| EP075(SIM): Pyrene | 129-00-0 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 110 | 70 | 134 |
| EP075(SIM): Benz(a)anthracene | 56-55-3 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | # 129 | 64 | 120 |
| EP075(SIM): Chrysene | 218-01-9 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 110 | 66 | 119 |
| EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2<br>205-82-3 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | # 140 | 59 | 129 |
| EP075(SIM): Benzo(k)fluoranthene | 207-08-9 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 105 | 70 | 129 |
| EP075(SIM): Benzo(a)pyrene | 50-32-8 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 112 | 76 | 121 |
| EP075(SIM): Indeno(1.2.3.cd)pyrene | 193-39-5 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 109 | 53 | 135 |
| EP075(SIM): Dibenz(a.h)anthracene | 53-70-3 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 110 | 45 | 134 |
| EP075(SIM): Benzo(g.h.i)perylene | 191-24-2 | 0.5 | mg/kg | <0.5 | 1.5 mg/kg | 111 | 64 | 131 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 741306)** | | | | | | | | |
| EP080: C6 - C9 Fraction | ---- | 10 | mg/kg | <10 | 16 mg/kg | 93.6 | 66 | 120 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 741308)** | | | | | | | | |
| EP071: C10 - C14 Fraction | ---- | 50 | mg/kg | <50 | 318 mg/kg | 99.6 | 79 | 123 |
| EP071: C15 - C28 Fraction | ---- | 100 | mg/kg | <100 | 531 mg/kg | 103 | 77 | 123 |
| EP071: C29 - C36 Fraction | ---- | 100 | mg/kg | <100 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 741306)** | | | | | | | | |
| EP080: C6 - C10 Fraction | C6_C10 | 10 | mg/kg | <10 | 18.5 mg/kg | 93.6 | 66 | 119 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 741308)** | | | | | | | | |
| EP071: >C10 - C16 Fraction | ---- | 50 | mg/kg | <50 | 428 mg/kg | 101 | 81 | 122 |
| EP071: >C16 - C34 Fraction | ---- | 100 | mg/kg | <100 | 395 mg/kg | 99.8 | 74 | 122 |
| EP071: >C34 - C40 Fraction | ---- | 100 | mg/kg | <100 | ---- | ---- | ---- | ---- |
| **EP080: BTEXN (QCLot: 741306)** | | | | | | | | |
| EP080: Benzene | 71-43-2 | 0.2 | mg/kg | <0.2 | 1 mg/kg | 80.0 | 73 | 105 |
| EP080: Toluene | 108-88-3 | 0.5 | mg/kg | <0.5 | 1 mg/kg | 90.1 | 73 | 105 |

Sub-Matrix: **SOIL**

| 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: BTEXN (QCLot: 741306) - continued** | | | | | | | | |
| EP080: Ethylbenzene | 100-41-4 | 0.5 | mg/kg | <0.5 | 1 mg/kg | 91.0 | 67 | 104 |
| EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 0.5 | mg/kg | <0.5 | 2 mg/kg | 88.1 | 66 | 106 |
| EP080: ortho-Xylene | 95-47-6 | 0.5 | mg/kg | <0.5 | 1 mg/kg | 82.6 | 68 | 105 |
| EP080: Naphthalene | 91-20-3 | 1 | mg/kg | <1 | 1 mg/kg | 88.8 | 72 | 115 |

## 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: **SOIL**

| Laboratory sample ID | Client sample ID | Method: Compound | CAS Number | Matrix Spike (MS) Report: Spike Concentration | SpikeRecovery(%): MS | Recovery Limits (%): Low | Recovery Limits (%): High |
|---|---|---|---|---|---|---|---|
| **EG005T: Total Metals by ICP-AES (QCLot: 741414)** | | | | | | | |
| EB1702000-002 | M46 | EG005T: Arsenic | 7440-38-2 | 50 mg/kg | 99.7 | 70 | 130 |
| | | EG005T: Barium | 7440-39-3 | 50 mg/kg | 114 | 70 | 130 |
| **EG020T: Total Metals by ICP-MS (QCLot: 741416)** | | | | | | | |
| EB1702000-002 | M46 | EG020X-T: Beryllium | 7440-41-7 | 5 mg/kg | 89.4 | 70 | 130 |
| | | EG020X-T: Cobalt | 7440-48-4 | 50 mg/kg | 111 | 70 | 130 |
| | | EG020X-T: Chromium | 7440-47-3 | 50 mg/kg | 104 | 70 | 130 |
| | | EG020X-T: Copper | 7440-50-8 | 50 mg/kg | 102 | 70 | 130 |
| | | EG020X-T: Manganese | 7439-96-5 | 50 mg/kg | # Not Determined | 70 | 130 |
| | | EG020X-T: Nickel | 7440-02-0 | 50 mg/kg | 108 | 70 | 130 |
| | | EG020X-T: Lead | 7439-92-1 | 50 mg/kg | 108 | 70 | 130 |
| | | EG020X-T: Zinc | 7440-66-6 | 50 mg/kg | 102 | 70 | 130 |
| | | EG020X-T: Vanadium | 7440-62-2 | 50 mg/kg | 99.8 | 70 | 130 |
| **EG020T: Total Metals by ICP-MS (QCLot: 741417)** | | | | | | | |
| EB1702000-002 | M46 | EG020Y-T: Cadmium | 7440-43-9 | 25 mg/kg | 98.9 | 70 | 130 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 741415)** | | | | | | | |
| EB1702000-002 | M46 | EG035T: Mercury | 7439-97-6 | 2.5 mg/kg | 108 | 70 | 130 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 741421)** | | | | | | | |
| EB1702000-002 | M46 | EK059G: Nitrite + Nitrate as N (Sol.) | ---- | 2 mg/kg | 96.6 | 70 | 130 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 741420)** | | | | | | | |
| EB1702000-002 | M46 | EK061G: Total Kjeldahl Nitrogen as N | ---- | 500 mg/kg | 103 | 70 | 130 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 741419)** | | | | | | | |
| EB1702000-002 | M46 | EK067G: Total Phosphorus as P | ---- | 100 mg/kg | 94.5 | 70 | 130 |

Sub-Matrix: **SOIL**

| | | | | Matrix Spike (MS) Report | | | |
|---|---|---|---|---|---|---|---|
| | | | | Spike | SpikeRecovery(%) | Recovery Limits (%) | |
| *Laboratory sample ID* | *Client sample ID* | *Method: Compound* | *CAS Number* | *Concentration* | *MS* | *Low* | *High* |
| **EP004: Organic Matter (QCLot: 741917)** | | | | | | | |
| EB1702000-002 | M46 | EP004: Organic Matter | ---- | 1.84 % | 79.2 | 70 | 130 |
| | | EP004: Total Organic Carbon | ---- | 1.04 % | 79.3 | 70 | 130 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 741307)** | | | | | | | |
| EB1702000-002 | M46 | EP075(SIM): Acenaphthene | 83-32-9 | 1.5 mg/kg | 102 | 70 | 130 |
| | | EP075(SIM): Pyrene | 129-00-0 | 1.5 mg/kg | 101 | 70 | 130 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 741306)** | | | | | | | |
| EB1702000-002 | M46 | EP080: C6 - C9 Fraction | ---- | 8 mg/kg | 84.8 | 70 | 130 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 741308)** | | | | | | | |
| EB1702000-002 | M46 | EP071: C10 - C14 Fraction | ---- | 318 mg/kg | 99.8 | 70 | 130 |
| | | EP071: C15 - C28 Fraction | ---- | 531 mg/kg | 103 | 70 | 130 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 741306)** | | | | | | | |
| EB1702000-002 | M46 | EP080: C6 - C10 Fraction | C6_C10 | 8 mg/kg | 86.7 | 70 | 130 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 741308)** | | | | | | | |
| EB1702000-002 | M46 | EP071: >C10 - C16 Fraction | ---- | 428 mg/kg | 101 | 70 | 130 |
| | | EP071: >C16 - C34 Fraction | ---- | 395 mg/kg | 101 | 70 | 130 |
| **EP080: BTEXN (QCLot: 741306)** | | | | | | | |
| EB1702000-002 | M46 | EP080: Benzene | 71-43-2 | 2 mg/kg | 73.3 | 70 | 130 |
| | | EP080: Toluene | 108-88-3 | 2 mg/kg | 72.0 | 70 | 130 |

ALS Environmental

# QA/QC Compliance Assessment to assist with Quality Review

| | | | |
|---|---|---|---|
| **Work Order** | : **EB1702000** | Page | : 1 of 8 |
| Client | : **BMT WBM GROUP LTD** | Laboratory | : Environmental Division Brisbane |
| Contact | : MR JEREMY VISSER | Telephone | : +61-7-3243 7222 |
| Project | : B21414 Elk | Date Samples Received | : 02-Feb-2017 |
| Site | : ---- | Issue Date | : 23-Feb-2017 |
| Sampler | : BRAD HILES, DANIEL MORAN | No. of samples received | : 3 |
| Order number | : ---- | No. of samples analysed | : 3 |

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

### Outliers : Analysis Holding Time Compliance

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

### Outliers : Frequency of Quality Control Samples

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

## Outliers : Quality Control Samples

*Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes*

Matrix: **SOIL**

| Compound Group Name | Laboratory Sample ID | Client Sample ID | Analyte | CAS Number | Data | Limits | Comment |
|---|---|---|---|---|---|---|---|
| **Duplicate (DUP) RPDs** | | | | | | | |
| EK061G: Total Kjeldahl Nitrogen By Discrete Analyser | EB1702000--001 | M45 | **Total Kjeldahl Nitrogen as N** | ---- | 30.6 % | 0% - 20% | **RPD exceeds LOR based limits** |
| **Laboratory Control Spike (LCS) Recoveries** | | | | | | | |
| EP075(SIM)B: Polynuclear Aromatic Hydrocarbons | QC-741307-002 | ---- | **Benz(a)anthracene** | 56-55-3 | 129 % | 64-120% | **Recovery greater than upper control limit** |
| EP075(SIM)B: Polynuclear Aromatic Hydrocarbons | QC-741307-002 | ---- | **Benzo(b+j)fluoranthene** | 205-99-2 205-82-3 | 140 % | 59-129% | **Recovery greater than upper control limit** |
| **Matrix Spike (MS) Recoveries** | | | | | | | |
| EG020T: Total Metals by ICP-MS | EB1702000--002 | M46 | **Manganese** | 7439-96-5 | Not Determined | ---- | **MS recovery not determined, background level greater than or equal to 4x spike level.** |

## Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

| Method / Container / Client Sample ID(s) | | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Days overdue | Date analysed | Due for analysis | Days overdue |
| **EA055: Moisture Content** | | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | | |
| M45, | M46 | ---- | ---- | ---- | 02-Feb-2017 | 30-Jan-2017 | **3** |
| **EP004: Organic Matter** | | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | | |
| M45, | M46 | 20-Feb-2017 | 13-Feb-2017 | **7** | 22-Feb-2017 | 13-Feb-2017 | **9** |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | | |
| M45, | M46 | 03-Feb-2017 | 30-Jan-2017 | **4** | ---- | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | | |
| M45, Trip blank | M46, | 03-Feb-2017 | 30-Jan-2017 | **4** | 03-Feb-2017 | 30-Jan-2017 | **4** |
| **Soil Glass Jar - Unpreserved** | | | | | | | |
| M45, | M46 | 03-Feb-2017 | 30-Jan-2017 | **4** | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | | |
| M45, Trip blank | M46, | 03-Feb-2017 | 30-Jan-2017 | **4** | 03-Feb-2017 | 30-Jan-2017 | **4** |
| **Soil Glass Jar - Unpreserved** | | | | | | | |
| M45, | M46 | 03-Feb-2017 | 30-Jan-2017 | **4** | ---- | ---- | ---- |
| **EP080: BTEXN** | | | | | | | |

Matrix: **SOIL**

| Method / Container / Client Sample ID(s) | Extraction / Preparation: Date extracted | Extraction / Preparation: Due for extraction | Extraction / Preparation: Days overdue | Analysis: Date analysed | Analysis: Due for analysis | Analysis: Days overdue |
|---|---|---|---|---|---|---|
| **EP080: BTEXN - Analysis Holding Time Compliance** | | | | | | |
| **Soil Glass Jar - Unpreserved** | | | | | | |
| M45, M46, Trip blank | 03-Feb-2017 | 30-Jan-2017 | **4** | 03-Feb-2017 | 30-Jan-2017 | **4** |

## *Outliers : Frequency of Quality Control Samples*

Matrix: **SOIL**

| Quality Control Sample Type / Method | Count: QC | Count: Regular | Rate (%): Actual | Rate (%): Expected | Quality Control Specification |
|---|---|---|---|---|---|
| Matrix Spikes (MS) | | | | | |
| Total Metals by ICP-MS - Suite Z | 0 | 2 | 0.00 | 5.00 | NEPM 2013 B3 & ALS QC Standard |

# *Analysis Holding Time Compliance*

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

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

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

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

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation: Date extracted | Extraction / Preparation: Due for extraction | Extraction / Preparation: Evaluation | Analysis: Date analysed | Analysis: Due for analysis | Analysis: Evaluation |
|---|---|---|---|---|---|---|---|
| **EA055: Moisture Content** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EA055-103)** | | | | | | | |
| M45, M46 | **16-Jan-2017** | **----** | ---- | ---- | **02-Feb-2017** | 30-Jan-2017 | × |
| **EA150: Particle Sizing** | | | | | | | |
| **Snap Lock Bag (EA150H)** | | | | | | | |
| M45, M46 | **16-Jan-2017** | **----** | ---- | ---- | **23-Feb-2017** | 15-Jul-2017 | ✓ |
| **EA150: Soil Classification based on Particle Size** | | | | | | | |
| **Snap Lock Bag (EA150H)** | | | | | | | |
| M45, M46 | **16-Jan-2017** | **----** | ---- | ---- | **23-Feb-2017** | 15-Jul-2017 | ✓ |
| **EA152: Soil Particle Density** | | | | | | | |
| **Snap Lock Bag (EA152)** | | | | | | | |
| M45, M46 | **16-Jan-2017** | **----** | ---- | ---- | **23-Feb-2017** | 15-Jul-2017 | ✓ |
| **EG005T: Total Metals by ICP-AES** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EG005T)** | | | | | | | |
| M45, M46 | **16-Jan-2017** | **03-Feb-2017** | 15-Jul-2017 | ✓ | **03-Feb-2017** | 15-Jul-2017 | ✓ |
| **EG020T: Total Metals by ICP-MS** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EG020Z-T)** | | | | | | | |
| M45, M46 | **16-Jan-2017** | **03-Feb-2017** | 15-Jul-2017 | ✓ | **03-Feb-2017** | 15-Jul-2017 | ✓ |

Matrix: **SOIL**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EG035T)** | | | | | | | |
| M45, M46 | **16-Jan-2017** | **03-Feb-2017** | 13-Feb-2017 | ✓ | **06-Feb-2017** | 13-Feb-2017 | ✓ |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EK059G)** | | | | | | | |
| M45, M46 | **16-Jan-2017** | **09-Feb-2017** | 15-Jul-2017 | ✓ | **20-Feb-2017** | 15-Jul-2017 | ✓ |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EK061G)** | | | | | | | |
| M45, M46 | **16-Jan-2017** | **03-Feb-2017** | 15-Jul-2017 | ✓ | **06-Feb-2017** | 15-Jul-2017 | ✓ |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EK067G)** | | | | | | | |
| M45, M46 | **16-Jan-2017** | **03-Feb-2017** | 15-Jul-2017 | ✓ | **06-Feb-2017** | 15-Jul-2017 | ✓ |
| **EP004: Organic Matter** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EP004)** | | | | | | | |
| M45, M46 | **16-Jan-2017** | **20-Feb-2017** | 13-Feb-2017 | × | **22-Feb-2017** | 13-Feb-2017 | × |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EP075(SIM))** | | | | | | | |
| M45, M46 | **16-Jan-2017** | **03-Feb-2017** | 30-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EP071)** | | | | | | | |
| M45 | **16-Jan-2017** | **03-Feb-2017** | 30-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** | | | | | | | |
| M45 | **16-Jan-2017** | **03-Feb-2017** | 30-Jan-2017 | × | **03-Feb-2017** | 30-Jan-2017 | × |
| **Soil Glass Jar - Unpreserved (EP071)** | | | | | | | |
| M46 | **16-Jan-2017** | **03-Feb-2017** | 30-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** | | | | | | | |
| M46, Trip blank | **16-Jan-2017** | **03-Feb-2017** | 30-Jan-2017 | × | **03-Feb-2017** | 30-Jan-2017 | × |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EP071)** | | | | | | | |
| M45 | **16-Jan-2017** | **03-Feb-2017** | 30-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** | | | | | | | |
| M45 | **16-Jan-2017** | **03-Feb-2017** | 30-Jan-2017 | × | **03-Feb-2017** | 30-Jan-2017 | × |
| **Soil Glass Jar - Unpreserved (EP071)** | | | | | | | |
| M46 | **16-Jan-2017** | **03-Feb-2017** | 30-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| **Soil Glass Jar - Unpreserved (EP080)** | | | | | | | |
| M46, Trip blank | **16-Jan-2017** | **03-Feb-2017** | 30-Jan-2017 | × | **03-Feb-2017** | 30-Jan-2017 | × |
| **EP080: BTEXN** | | | | | | | |
| **Soil Glass Jar - Unpreserved (EP080)** | | | | | | | |
| M45, M46, Trip blank | **16-Jan-2017** | **03-Feb-2017** | 30-Jan-2017 | × | **03-Feb-2017** | 30-Jan-2017 | × |

# Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

| Quality Control Sample Type | | Count | | Rate (%) | | | Quality Control Specification |
|---|---|---|---|---|---|---|---|
| *Analytical Methods* | *Method* | *QC* | *Regular* | ***Actual*** | ***Expected*** | *Evaluation* | |
| **Laboratory Duplicates (DUP)** | | | | | | | |
| Moisture Content | EA055-103 | 1 | 2 | **50.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser | EK059G | 1 | 2 | **50.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Organic Matter | EP004 | 1 | 2 | **50.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM) | EP075(SIM) | 1 | 2 | **50.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TKN as N By Discrete Analyser | EK061G | 1 | 2 | **50.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 1 | 2 | **50.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES | EG005T | 2 | 2 | **100.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite X | EG020X-T | 1 | 2 | **50.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Y | EG020Y-T | 1 | 2 | **50.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Z | EG020Z-T | 1 | 2 | **50.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Phosporus By Discrete Analyser | EK067G | 1 | 2 | **50.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 1 | 2 | **50.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 1 | 3 | **33.33** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| **Laboratory Control Samples (LCS)** | | | | | | | |
| Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser | EK059G | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Organic Matter | EP004 | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM) | EP075(SIM) | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TKN as N By Discrete Analyser | EK061G | 2 | 2 | **100.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES | EG005T | 2 | 2 | **100.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite X | EG020X-T | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Y | EG020Y-T | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Z | EG020Z-T | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Phosporus By Discrete Analyser | EK067G | 2 | 2 | **100.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 1 | 3 | **33.33** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| **Method Blanks (MB)** | | | | | | | |
| Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser | EK059G | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Organic Matter | EP004 | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM) | EP075(SIM) | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TKN as N By Discrete Analyser | EK061G | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES | EG005T | 2 | 2 | **100.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |

Matrix: **SOIL**

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

| Quality Control Sample Type | | Count | | Rate (%) | | | Quality Control Specification |
|---|---|---|---|---|---|---|---|
| *Analytical Methods* | *Method* | *QC* | *Regular* | ***Actual*** | ***Expected*** | *Evaluation* | |
| **Method Blanks (MB) - Continued** | | | | | | | |
| Total Metals by ICP-MS - Suite X | EG020X-T | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Y | EG020Y-T | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Z | EG020Z-T | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Phosporus By Discrete Analyser | EK067G | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 1 | 3 | **33.33** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| **Matrix Spikes (MS)** | | | | | | | |
| Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser | EK059G | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Organic Matter | EP004 | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM) | EP075(SIM) | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TKN as N By Discrete Analyser | EK061G | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES | EG005T | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite X | EG020X-T | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Y | EG020Y-T | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-MS - Suite Z | EG020Z-T | 0 | 2 | **0.00** | **5.00** | × | NEPM 2013 B3 & ALS QC Standard |
| Total Phosporus By Discrete Analyser | EK067G | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 1 | 2 | **50.00** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 1 | 3 | **33.33** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |

## Brief Method Summaries

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

| Analytical Methods | Method | Matrix | Method Descriptions |
|---|---|---|---|
| Moisture Content | EA055-103 | SOIL | In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time). |
| Particle Size Analysis by Hydrometer | EA150H | SOIL | Particle Size Analysis by Hydrometer according to AS1289.3.6.3 - 2003 |
| Soil Particle Density | EA152 | SOIL | Soil Particle Density by AS 1289.3.5.1-2006 : Methods of testing soils for engineering purposes - Soil classification tests - Determination of the soil particle density of a soil - Standard method |
| Total Metals by ICP-AES | EG005T | SOIL | In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3) |
| Total Metals by ICP-MS - Suite X | EG020X-T | SOIL | In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector. |
| Total Metals by ICP-MS - Suite Y | EG020Y-T | SOIL | In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector. |
| Total Metals by ICP-MS - Suite Z | EG020Z-T | SOIL | In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector. |
| Total Mercury by FIMS | EG035T | SOIL | In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) |
| Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser | EK059G | SOIL | In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) in a water extract is determined by Chemical Reduction, and direct colourimetry by Discrete Analyser. |
| TKN as N By Discrete Analyser | EK061G | SOIL | In house: Referenced to APHA 4500-Norg-D Soil samples are digested using Kjeldahl digestion followed by determination by Discrete Analyser. |
| Total Nitrogen as N (TKN + NOx) By Discrete Analyser | EK062G | SOIL | In house: Referenced to APHA 4500 Norg/NO3- Total Nitrogen is determined as the sum of TKN and Oxidised Nitrrogen, each determined seperately as N. |
| Total Phosporus By Discrete Analyser | EK067G | SOIL | In house: Referenced to APHA 4500 P-B&F This procedure involves sulfuric acid digestion and quantification using Discrete Analyser. |
| Organic Matter | EP004 | SOIL | In house: Referenced to AS1289.4.1.1 - 1997., Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3) |

| Analytical Methods | Method | Matrix | Method Descriptions |
|---|---|---|---|
| TRH - Semivolatile Fraction | EP071 | SOIL | In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. |
| PAH/Phenols (SIM) | EP075(SIM) | SOIL | In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507) |
| TRH Volatiles/BTEX | EP080 | SOIL | In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. |

| Preparation Methods | Method | Matrix | Method Descriptions |
|---|---|---|---|
| TKN/TP Digestion | EK061/EK067 | SOIL | In house: Referenced to APHA 4500 Norg- D; APHA 4500 P - H. Macro Kjeldahl digestion. |
| 1:5 solid / water leach for soluble analytes | EN34 | SOIL | 10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis. |
| Hot Block Digest for metals in soils sediments and sludges | EN69 | SOIL | In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202) |
| Organic Matter | EP004-PR | SOIL | In house: Referenced to AS1289.4.1.1 - 1997. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM (2013) Schedule B(3) (Method 105) |
| Methanolic Extraction of Soils for Purge and Trap | ORG16 | SOIL | In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS. |
| Tumbler Extraction of Solids | ORG17 | SOIL | In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis. |

ALS Environmental

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **Work Order** | : **EB1702002** | Page | : 1 of 67 |
| **Amendment** | : **2** | | |
| Client | : **BMT WBM GROUP LTD** | Laboratory | : Environmental Division Brisbane |
| Contact | : MR JEREMY VISSER | Contact | : Customer Services EB |
| Address | : PO BOX 203 SPRING HILL BRISBANE QLD 4004 | Address | : 2 Byth Street Stafford QLD Australia 4053 |
| Telephone | : +61 07 3831 6744 | Telephone | : +61-7-3243 7222 |
| Project | : B21414 Elk | Date Samples Received | : 02-Feb-2017 11:30 |
| Order number | : ---- | Date Analysis Commenced | : 03-Feb-2017 |
| C-O-C number | : ---- | Issue Date | : 02-Mar-2017 18:34 |
| Sampler | : BRAD HILES, DANIEL MORAN | | |
| Site | : ---- | | |
| Quote number | : BN/250/15 V5 | | |
| No. of samples received | : 77 | | |
| No. of samples analysed | : 77 | | |

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* |
|---|---|---|
| Andrew Epps | Senior Inorganic Chemist | WB Water Lab Brisbane, Stafford, QLD |
| Diana Mesa | 2IC Organic Chemist | Brisbane Organics, Stafford, QLD |
| Greg Vogel | Laboratory Manager | Brisbane Inorganics, Stafford, QLD |
| Greg Vogel | Laboratory Manager | WB Water Lab Brisbane, Stafford, QLD |
| Kim McCabe | Senior Inorganic Chemist | WB Water Lab Brisbane, Stafford, QLD |

## 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 no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

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.

- EK055G (Ammonia as N): Some samples were diluted due to matrix interference. LOR adjusted accordingly.
- It is recognised that EK061G (Total Kjeldahl Nitrogen) is less than EK055G (Ammonia) for some samples. However, the difference is within experimental variation of the methods.
- It is recognised that EG093-T (Total Metals in Saline Water by ORC-ICP-MS) is less than EG093-F (Dissolved Metals in Saline Water by ORC-ICP-MS) for some samples. However, the difference is within experimental variation of the methods.
- EG035F (Dissolved Mercury): Positive mercury results have been confirmed by re-extraction and re-analysis.
- EG035T (Total Mercury): Positive results for Mercury have been confirmed by re-extraction and re-analysis.
- EG093-F (Dissolved Metals in Saline Water by ORC-ICP-MS) were found to be higher than EG094-T (Total Metals in Saline Water by ORC-ICP-MS) for sample EB1702002 - 018 (M1-B). This was confirmed by re-digestion and re-analysis.
- Amendment (21/02/2017): This report has been amended following changes to the analytical data reported. The quality system is being utilised to resolve this issue. The specific data affected includes the total and dissolved results for sample EB1702002-031 (M46-M) and the dissolved aluminium result for sample EB1702002-067 (M19-S).
- Amendment 2 (2/03/2017): This report has been amended following changes to the analytical data reported. The quality system is being utilised to resolve this issue. The specific data affected includes the total and dissolved results for sample EB1702002-018 (M1-B).
- EK061/67 (Total Kjeldahl Nitrogen/Total Phosphorus): The LOR has been raised due to matrix interference.
- 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 | M6-S | M6-B | M3-S | M3-M | M3-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 15-Jan-2017 08:30 | 15-Jan-2017 08:30 | 15-Jan-2017 10:30 | 15-Jan-2017 10:30 | 15-Jan-2017 10:30 |
| Compound | CAS Number | LOR | Unit | | EB1702002-001 | EB1702002-002 | EB1702002-003 | EB1702002-004 | EB1702002-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | <1 | 1 | 1 | <1 | <1 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.0 | 1.2 | 1.0 | 1.2 | 1.4 |
| Barium | 7440-39-3 | 1 | µg/L | | 13 | 7 | 11 | 6 | 5 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | 0.3 | 0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 5620 | 6560 | 6020 | 6650 | 6990 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 1.8 | 1.6 | 1.8 | 1.6 | 1.6 |
| Zinc | 7440-66-6 | 5 | µg/L | | 6 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | 27 | 16 | 11 | <5 | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | 45 | 32 | 23 | 9 | 24 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 2.1 | 1.4 | 1.1 | 1.6 | 1.0 |
| Barium | 7440-39-3 | 1 | µg/L | | 13 | 8 | 9 | 7 | 6 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | 0.3 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | 0.8 |
| Strontium | 7440-24-6 | 10 | µg/L | | 5840 | 6760 | 5630 | 6800 | 7020 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 5.4 | 3.4 | 2.4 | 2.3 | 2.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M6-S | M6-B | M3-S | M3-M | M3-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 15-Jan-2017 08:30 | 15-Jan-2017 08:30 | 15-Jan-2017 10:30 | 15-Jan-2017 10:30 | 15-Jan-2017 10:30 |
| Compound | CAS Number | LOR | Unit | | EB1702002-001 | EB1702002-002 | EB1702002-003 | EB1702002-004 | EB1702002-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | <0.05 | <0.05 | <0.05 | **0.23** |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | **0.02** | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M6-S | M6-B | M3-S | M3-M | M3-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 15-Jan-2017 08:30 | 15-Jan-2017 08:30 | 15-Jan-2017 10:30 | 15-Jan-2017 10:30 | 15-Jan-2017 10:30 |
| Compound | CAS Number | LOR | Unit | | EB1702002-001 | EB1702002-002 | EB1702002-003 | EB1702002-004 | EB1702002-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | 3 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | 3 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | 37.9 | 41.1 | 30.5 | 35.9 | 30.7 |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | 83.4 | 84.0 | 68.2 | 74.0 | 62.0 |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | 82.5 | 93.5 | 84.5 | 93.1 | 80.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M6-S | M6-B | M3-S | M3-M | M3-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 15-Jan-2017 08:30 | 15-Jan-2017 08:30 | 15-Jan-2017 10:30 | 15-Jan-2017 10:30 | 15-Jan-2017 10:30 |
| Compound | CAS Number | LOR | Unit | | EB1702002-001 | EB1702002-002 | EB1702002-003 | EB1702002-004 | EB1702002-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 1 | % | | **92.2** | **88.3** | **75.0** | **88.1** | **76.1** |
| **Anthracene-d10** | 1719-06-8 | 1 | % | | **79.5** | **84.8** | **71.7** | **79.4** | **70.2** |
| **4-Terphenyl-d14** | 1718-51-0 | 1 | % | | **94.2** | **82.5** | **66.0** | **92.7** | **67.6** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 2 | % | | **102** | **102** | **107** | **98.5** | **105** |
| **Toluene-D8** | 2037-26-5 | 2 | % | | **100** | **98.6** | **99.4** | **97.7** | **102** |
| **4-Bromofluorobenzene** | 460-00-4 | 2 | % | | **109** | **104** | **105** | **103** | **111** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M9-S | M9-M | M9-B | M10-S | M10-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 15-Jan-2017 12:00 | 15-Jan-2017 12:00 | 15-Jan-2017 12:00 | 15-Jan-2017 14:00 | 15-Jan-2017 14:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-006 | EB1702002-007 | EB1702002-008 | EB1702002-009 | EB1702002-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | 1 | <1 | <1 | <1 | <1 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0002 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0002 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.2 | 1.4 | 1.5 | 1.1 | 1.2 |
| Barium | 7440-39-3 | 1 | µg/L | | 10 | 6 | 5 | 11 | 6 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | 1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 6290 | 6740 | 7060 | 6160 | 6940 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 1.8 | 1.5 | 1.7 | 2.1 | 1.6 |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | 13 | <5 | <5 | 12 | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | 29 | 13 | 12 | 89 | 13 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.2 | 1.3 | 1.5 | 1.4 | 1.5 |
| Barium | 7440-39-3 | 1 | µg/L | | 11 | 6 | 6 | 11 | 7 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 6100 | 6650 | 6720 | 5990 | 6720 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 2.4 | 2.5 | 2.4 | 2.8 | 2.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M9-S | M9-M | M9-B | M10-S | M10-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 15-Jan-2017 12:00 | 15-Jan-2017 12:00 | 15-Jan-2017 12:00 | 15-Jan-2017 14:00 | 15-Jan-2017 14:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-006 | EB1702002-007 | EB1702002-008 | EB1702002-009 | EB1702002-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.72** | **0.27** | <0.25 | <0.25 | <0.25 |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | **0.05** | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | **0.05** | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M9-S | M9-M | M9-B | M10-S | M10-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 15-Jan-2017 12:00 | 15-Jan-2017 12:00 | 15-Jan-2017 12:00 | 15-Jan-2017 14:00 | 15-Jan-2017 14:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-006 | EB1702002-007 | EB1702002-008 | EB1702002-009 | EB1702002-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **34.4** | **32.4** | **35.6** | **30.2** | **28.4** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **70.5** | **63.1** | **75.9** | **72.0** | **72.7** |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | **88.1** | **81.6** | **89.6** | **86.3** | **81.0** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M9-S | M9-M | M9-B | M10-S | M10-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 15-Jan-2017 12:00 | 15-Jan-2017 12:00 | 15-Jan-2017 12:00 | 15-Jan-2017 14:00 | 15-Jan-2017 14:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-006 | EB1702002-007 | EB1702002-008 | EB1702002-009 | EB1702002-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 1 | % | | **83.6** | **74.5** | **83.9** | **80.0** | **74.7** |
| **Anthracene-d10** | 1719-06-8 | 1 | % | | **79.9** | **69.3** | **77.7** | **78.4** | **76.3** |
| **4-Terphenyl-d14** | 1718-51-0 | 1 | % | | **97.4** | **77.7** | **90.7** | **89.3** | **74.1** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 2 | % | | **106** | **103** | **110** | **103** | **101** |
| **Toluene-D8** | 2037-26-5 | 2 | % | | **98.0** | **99.6** | **99.4** | **97.2** | **97.4** |
| **4-Bromofluorobenzene** | 460-00-4 | 2 | % | | **107** | **105** | **103** | **104** | **104** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M4-S | M4-M | M4-B | M12-S | M12-M |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 15-Jan-2017 15:45 | 15-Jan-2017 16:00 | 15-Jan-2017 16:00 | 15-Jan-2017 17:00 | 15-Jan-2017 17:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-011 | EB1702002-012 | EB1702002-013 | EB1702002-014 | EB1702002-015 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | 2 | <1 | <1 | 2 | <1 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 0.9 | 1.1 | 1.3 | 0.7 | 1.3 |
| Barium | 7440-39-3 | 1 | µg/L | | 20 | 6 | 7 | 18 | 6 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | 1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 4710 | 6980 | 7030 | 5380 | 6800 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 2.2 | 1.8 | 1.6 | 2.2 | 1.7 |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | 6 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | 34 | <5 | 19 | 18 | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | 50 | 60 | 42 | 41 | 12 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 0.9 | 1.3 | 1.7 | 1.2 | 1.5 |
| Barium | 7440-39-3 | 1 | µg/L | | 16 | 6 | 6 | 17 | 6 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | 1.0 | 1.7 |
| Strontium | 7440-24-6 | 10 | µg/L | | 5370 | 6810 | 6840 | 5280 | 6790 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 2.8 | 2.9 | 3.0 | 2.8 | 3.1 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M4-S | M4-M | M4-B | M12-S | M12-M |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 15-Jan-2017 15:45 | 15-Jan-2017 16:00 | 15-Jan-2017 16:00 | 15-Jan-2017 17:00 | 15-Jan-2017 17:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-011 | EB1702002-012 | EB1702002-013 | EB1702002-014 | EB1702002-015 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.66** | <0.25 | <0.25 | <0.25 | <0.25 |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

| Compound | CAS Number | LOR | Unit | Client sample ID | M4-S | M4-M | M4-B | M12-S | M12-M |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 15-Jan-2017 15:45 | 15-Jan-2017 16:00 | 15-Jan-2017 16:00 | 15-Jan-2017 17:00 | 15-Jan-2017 17:00 |
| | | | | | EB1702002-011 | EB1702002-012 | EB1702002-013 | EB1702002-014 | EB1702002-015 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| **Indeno(1.2.3.cd)pyrene** | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| **Dibenz(a.h)anthracene** | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| **Benzo(g.h.i)perylene** | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ **Sum of polycyclic aromatic hydrocarbons** | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ **Benzo(a)pyrene TEQ (zero)** | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| **C6 - C9 Fraction** | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| **C10 - C14 Fraction** | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **C15 - C28 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **C29 - C36 Fraction** | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ **C10 - C36 Fraction (sum)** | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| **C6 - C10 Fraction** | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ **C6 - C10 Fraction minus BTEX (F1)** | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| **>C10 - C16 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **>C16 - C34 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **>C34 - C40 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ **>C10 - C40 Fraction (sum)** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ **>C10 - C16 Fraction minus Naphthalene (F2)** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| **Benzene** | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Toluene** | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| **Ethylbenzene** | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| **meta- & para-Xylene** | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| **ortho-Xylene** | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ **Total Xylenes** | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ **Sum of BTEX** | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Naphthalene** | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| **Phenol-d6** | 13127-88-3 | 1 | % | | **27.6** | **29.1** | **27.2** | **28.2** | **40.9** |
| **2-Chlorophenol-D4** | 93951-73-6 | 1 | % | | **73.3** | **75.0** | **73.0** | **79.8** | **86.3** |
| **2.4.6-Tribromophenol** | 118-79-6 | 1 | % | | **77.2** | **82.5** | **76.6** | **80.0** | **89.3** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M4-S | M4-M | M4-B | M12-S | M12-M |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 15-Jan-2017 15:45 | 15-Jan-2017 16:00 | 15-Jan-2017 16:00 | 15-Jan-2017 17:00 | 15-Jan-2017 17:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-011 | EB1702002-012 | EB1702002-013 | EB1702002-014 | EB1702002-015 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 1 | % | | **81.6** | **79.2** | **73.5** | **82.9** | **84.2** |
| **Anthracene-d10** | 1719-06-8 | 1 | % | | **71.1** | **77.9** | **71.8** | **74.9** | **74.8** |
| **4-Terphenyl-d14** | 1718-51-0 | 1 | % | | **87.9** | **79.5** | **74.7** | **73.5** | **87.2** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 2 | % | | **102** | **103** | **105** | **97.6** | **103** |
| **Toluene-D8** | 2037-26-5 | 2 | % | | **98.4** | **99.1** | **97.9** | **97.9** | **100** |
| **4-Bromofluorobenzene** | 460-00-4 | 2 | % | | **105** | **106** | **105** | **102** | **109** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M12-B | M1-S | M1-B | M5-S | M5-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 15-Jan-2017 17:00 | 16-Jan-2017 08:00 | 16-Jan-2017 08:00 | 16-Jan-2017 08:45 | 16-Jan-2017 08:45 |
| Compound | CAS Number | LOR | Unit | | EB1702002-016 | EB1702002-017 | EB1702002-018 | EB1702002-019 | EB1702002-020 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | <1 | <1 | 6 | <1 | 1 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | <5 | 12 | <5 | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | <5 | <5 | 6 | <5 | <5 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.3 | 1.1 | 1.0 | 1.3 | 1.5 |
| Barium | 7440-39-3 | 1 | µg/L | | 6 | 11 | 8 | 11 | 7 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | <0.1 | <0.1 | 0.2 | <0.1 | <0.1 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | 0.6 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 7100 | 6110 | 6380 | 6320 | 7040 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 1.7 | 2.0 | 2.2 | 1.8 | 1.8 |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | 5 | <5 | <5 | 11 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | 17 | 288 | 5 | 34 |
| Iron | 7439-89-6 | 5 | µg/L | | 10 | 29 | 360 | 15 | 65 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.6 | 1.3 | 1.1 | 1.5 | 1.3 |
| Barium | 7440-39-3 | 1 | µg/L | | 6 | 11 | 8 | 11 | 7 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | 0.7 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | 0.3 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | 0.8 | <0.5 | 1.0 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 6840 | 6200 | 6640 | 6080 | 6540 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 2.7 | 2.9 | 3.1 | 3.0 | 3.1 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M12-B | M1-S | M1-B | M5-S | M5-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 15-Jan-2017 17:00 | 16-Jan-2017 08:00 | 16-Jan-2017 08:00 | 16-Jan-2017 08:45 | 16-Jan-2017 08:45 |
| Compound | CAS Number | LOR | Unit | | EB1702002-016 | EB1702002-017 | EB1702002-018 | EB1702002-019 | EB1702002-020 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | <0.25 | <0.25 | <0.25 | **0.31** | **0.31** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | **2** | <1 | **1** |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M12-B | M1-S | M1-B | M5-S | M5-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 15-Jan-2017 17:00 | 16-Jan-2017 08:00 | 16-Jan-2017 08:00 | 16-Jan-2017 08:45 | 16-Jan-2017 08:45 |
| Compound | CAS Number | LOR | Unit | | EB1702002-016 | EB1702002-017 | EB1702002-018 | EB1702002-019 | EB1702002-020 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **34.1** | **38.6** | **36.6** | **34.8** | **29.7** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **78.8** | **79.2** | **70.4** | **73.5** | **59.1** |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | **83.4** | **88.5** | **80.3** | **82.8** | **69.8** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M12-B | M1-S | M1-B | M5-S | M5-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 15-Jan-2017 17:00 | 16-Jan-2017 08:00 | 16-Jan-2017 08:00 | 16-Jan-2017 08:45 | 16-Jan-2017 08:45 |
| Compound | CAS Number | LOR | Unit | | EB1702002-016 | EB1702002-017 | EB1702002-018 | EB1702002-019 | EB1702002-020 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 1 | % | | **85.4** | **86.1** | **73.0** | **74.7** | **57.2** |
| **Anthracene-d10** | 1719-06-8 | 1 | % | | **74.6** | **73.6** | **67.8** | **68.6** | **58.0** |
| **4-Terphenyl-d14** | 1718-51-0 | 1 | % | | **88.7** | **84.7** | **77.5** | **81.0** | **69.6** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 2 | % | | **108** | **100** | **108** | **102** | **106** |
| **Toluene-D8** | 2037-26-5 | 2 | % | | **97.9** | **99.8** | **99.0** | **97.6** | **100** |
| **4-Bromofluorobenzene** | 460-00-4 | 2 | % | | **105** | **104** | **106** | **105** | **105** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M8-S | M8-B | M11-S | M11-SD | M11-M |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 09:45 | 16-Jan-2017 09:45 | 16-Jan-2017 10:45 | 16-Jan-2017 10:45 | 16-Jan-2017 10:45 |
| Compound | CAS Number | LOR | Unit | | EB1702002-021 | EB1702002-022 | EB1702002-023 | EB1702002-024 | EB1702002-025 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | <1 | 2 | 2 | <1 | <1 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 0.9 | 1.4 | 0.9 | 1.0 | 1.3 |
| Barium | 7440-39-3 | 1 | µg/L | | 8 | 7 | 11 | 11 | 6 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | 0.9 |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 6330 | 6740 | 5960 | 6000 | 6770 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 1.6 | 2.1 | 1.7 | 1.8 | 1.6 |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | 115 | 10 | 27 | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | 12 | 148 | 19 | 26 | 9 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.9 | 1.4 | 1.6 | 1.7 | 2.0 |
| Barium | 7440-39-3 | 1 | µg/L | | 8 | 8 | 11 | 12 | 6 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | 0.7 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 6730 | 7040 | 6450 | 6380 | 7480 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 4.2 | 3.8 | 2.7 | 2.3 | 2.8 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M8-S | M8-B | M11-S | M11-SD | M11-M |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 09:45 | 16-Jan-2017 09:45 | 16-Jan-2017 10:45 | 16-Jan-2017 10:45 | 16-Jan-2017 10:45 |
| Compound | CAS Number | LOR | Unit | | EB1702002-021 | EB1702002-022 | EB1702002-023 | EB1702002-024 | EB1702002-025 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.64** | **0.78** | <0.25 | <0.25 | <0.25 |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M8-S | M8-B | M11-S | M11-SD | M11-M |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 09:45 | 16-Jan-2017 09:45 | 16-Jan-2017 10:45 | 16-Jan-2017 10:45 | 16-Jan-2017 10:45 |
| Compound | CAS Number | LOR | Unit | | EB1702002-021 | EB1702002-022 | EB1702002-023 | EB1702002-024 | EB1702002-025 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **43.0** | **36.3** | **39.3** | **44.0** | **40.4** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **90.3** | **76.9** | **81.9** | **93.2** | **81.7** |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | **94.4** | **81.7** | **91.2** | **103** | **85.7** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M8-S | M8-B | M11-S | M11-SD | M11-M |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 09:45 | 16-Jan-2017 09:45 | 16-Jan-2017 10:45 | 16-Jan-2017 10:45 | 16-Jan-2017 10:45 |
| Compound | CAS Number | LOR | Unit | | EB1702002-021 | EB1702002-022 | EB1702002-023 | EB1702002-024 | EB1702002-025 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 1 | % | | **85.2** | **76.9** | **85.9** | **90.8** | **85.4** |
| **Anthracene-d10** | 1719-06-8 | 1 | % | | **76.4** | **69.4** | **76.5** | **81.4** | **69.6** |
| **4-Terphenyl-d14** | 1718-51-0 | 1 | % | | **88.3** | **80.5** | **91.7** | **93.8** | **79.1** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 2 | % | | **102** | **105** | **102** | **103** | **109** |
| **Toluene-D8** | 2037-26-5 | 2 | % | | **98.6** | **99.4** | **99.1** | **100** | **97.9** |
| **4-Bromofluorobenzene** | 460-00-4 | 2 | % | | **94.3** | **95.2** | **98.8** | **99.2** | **99.2** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M11-B | M2-S | M2-SD | M2-B | M46-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 10:45 | 16-Jan-2017 12:00 | 16-Jan-2017 12:00 | 16-Jan-2017 12:00 | 16-Jan-2017 14:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-026 | EB1702002-027 | EB1702002-028 | EB1702002-029 | EB1702002-030 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| **Suspended Solids (SS)** | ---- | 1 | mg/L | | **1** | <1 | <1 | <1 | **1** |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | **6** |
| **Iron** | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **1.4** | **1.1** | **0.9** | **1.1** | **1.1** |
| **Barium** | 7440-39-3 | 1 | µg/L | | **6** | **12** | **11** | **7** | **13** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Cobalt** | 7440-48-4 | 0.1 | µg/L | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | **1.4** | <0.5 | <0.5 | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **6940** | **5940** | **6090** | **6550** | **5380** |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **1.5** | **1.6** | **1.9** | **1.7** | **2.0** |
| **Zinc** | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | <5 | **10** | **14** | <5 | **73** |
| **Iron** | 7439-89-6 | 5 | µg/L | | **10** | **20** | **31** | **12** | **95** |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **1.8** | **2.1** | **2.3** | **2.0** | **1.6** |
| **Barium** | 7440-39-3 | 1 | µg/L | | **6** | **11** | **10** | **7** | **13** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **7360** | **6730** | **6370** | **6800** | **5560** |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **2.5** | **2.7** | **2.6** | **2.6** | **2.8** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M11-B | M2-S | M2-SD | M2-B | M46-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 10:45 | 16-Jan-2017 12:00 | 16-Jan-2017 12:00 | 16-Jan-2017 12:00 | 16-Jan-2017 14:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-026 | EB1702002-027 | EB1702002-028 | EB1702002-029 | EB1702002-030 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.74** | **0.88** | **0.73** | <0.25 | <0.25 |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | **0.06** | **0.15** | <0.05 | **0.15** |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | **0.03** | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M11-B | M2-S | M2-SD | M2-B | M46-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 10:45 | 16-Jan-2017 12:00 | 16-Jan-2017 12:00 | 16-Jan-2017 12:00 | 16-Jan-2017 14:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-026 | EB1702002-027 | EB1702002-028 | EB1702002-029 | EB1702002-030 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **49.8** | **28.3** | **37.5** | **40.7** | **33.6** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **85.0** | **54.4** | **80.1** | **82.0** | **77.2** |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | **97.4** | **59.4** | **84.7** | **85.7** | **84.2** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M11-B | M2-S | M2-SD | M2-B | M46-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 10:45 | 16-Jan-2017 12:00 | 16-Jan-2017 12:00 | 16-Jan-2017 12:00 | 16-Jan-2017 14:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-026 | EB1702002-027 | EB1702002-028 | EB1702002-029 | EB1702002-030 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 1 | % | | **91.7** | **57.3** | **82.0** | **87.7** | **79.2** |
| **Anthracene-d10** | 1719-06-8 | 1 | % | | **80.8** | **53.0** | **75.7** | **75.2** | **77.5** |
| **4-Terphenyl-d14** | 1718-51-0 | 1 | % | | **89.7** | **64.6** | **88.3** | **89.9** | **83.6** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 2 | % | | **110** | **115** | **116** | **117** | **113** |
| **Toluene-D8** | 2037-26-5 | 2 | % | | **101** | **95.1** | **95.7** | **93.6** | **96.7** |
| **4-Bromofluorobenzene** | 460-00-4 | 2 | % | | **95.9** | **94.6** | **98.3** | **95.9** | **93.5** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M46-M | M46-B | M45-S | M45-B | Trip Blank |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 14:00 | 16-Jan-2017 14:00 | 16-Jan-2017 15:00 | 16-Jan-2017 15:00 | 16-Jan-2017 15:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-031 | EB1702002-032 | EB1702002-033 | EB1702002-034 | EB1702002-035 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | <1 | 10 | 100 | 99 | ---- |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | ---- |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | ---- |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | 10 | 18 | 13 | ---- |
| Iron | 7439-89-6 | 5 | µg/L | | 25 | <5 | 14 | 8 | ---- |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.8 | 1.0 | <0.5 | <0.5 | ---- |
| Barium | 7440-39-3 | 1 | µg/L | | 11 | 8 | 14 | 34 | ---- |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | ---- |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | ---- |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | <0.1 | <0.1 | <0.1 | <0.1 | ---- |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | ---- |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | ---- |
| Strontium | 7440-24-6 | 10 | µg/L | | 5930 | 6540 | 250 | 911 | ---- |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | ---- |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 2.7 | 1.6 | 2.5 | 2.6 | ---- |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | ---- |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | 31 | 406 | 3620 | 2990 | ---- |
| Iron | 7439-89-6 | 5 | µg/L | | 42 | 566 | 5610 | 5020 | ---- |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.1 | 1.4 | 0.7 | 0.8 | ---- |
| Barium | 7440-39-3 | 1 | µg/L | | 12 | 8 | 23 | 38 | ---- |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | ---- |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | 5.2 | 4.5 | ---- |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | 0.3 | 2.0 | 1.9 | ---- |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | 6 | 4 | ---- |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | 1.5 | 1.3 | ---- |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | 1.0 | 5.6 | 4.8 | ---- |
| Strontium | 7440-24-6 | 10 | µg/L | | 6130 | 6460 | 310 | 995 | ---- |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | ---- |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 2.1 | 3.9 | 12.9 | 13.0 | ---- |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M46-M | M46-B | M45-S | M45-B | Trip Blank |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 14:00 | 16-Jan-2017 14:00 | 16-Jan-2017 15:00 | 16-Jan-2017 15:00 | 16-Jan-2017 15:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-031 | EB1702002-032 | EB1702002-033 | EB1702002-034 | EB1702002-035 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | **10** | **9** | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | <0.25 | <0.25 | <0.25 | <0.25 | ---- |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | ---- |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | **0.04** | **0.03** | ---- |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | **0.04** | **0.03** | ---- |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | **0.5** | **0.3** | **0.2** | ---- |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | **0.5** | **0.3** | **0.2** | ---- |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | **0.26** | **0.13** | **0.08** | ---- |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | **0.01** | ---- |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | ---- |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | ---- |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | ---- |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | ---- |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | ---- |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | ---- |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | ---- |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | ---- |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | ---- |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | ---- |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | ---- |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | ---- |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | ---- |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | ---- |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M46-M | M46-B | M45-S | M45-B | Trip Blank |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 14:00 | 16-Jan-2017 14:00 | 16-Jan-2017 15:00 | 16-Jan-2017 15:00 | 16-Jan-2017 15:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-031 | EB1702002-032 | EB1702002-033 | EB1702002-034 | EB1702002-035 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | ---- |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | ---- |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | ---- |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | ---- |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | ---- |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | ---- |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **41.3** | **35.2** | **31.2** | **32.6** | ---- |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **82.1** | **77.5** | **78.7** | **78.0** | ---- |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | **94.5** | **89.2** | **91.2** | **90.9** | ---- |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M46-M | M46-B | M45-S | M45-B | Trip Blank |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 14:00 | 16-Jan-2017 14:00 | 16-Jan-2017 15:00 | 16-Jan-2017 15:00 | 16-Jan-2017 15:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-031 | EB1702002-032 | EB1702002-033 | EB1702002-034 | EB1702002-035 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 1 | % | | **85.8** | **82.8** | **85.3** | **82.4** | **----** |
| **Anthracene-d10** | 1719-06-8 | 1 | % | | **83.3** | **79.6** | **81.2** | **81.2** | **----** |
| **4-Terphenyl-d14** | 1718-51-0 | 1 | % | | **88.7** | **86.0** | **86.4** | **86.4** | **----** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 2 | % | | **122** | **119** | **122** | **125** | **121** |
| **Toluene-D8** | 2037-26-5 | 2 | % | | **94.9** | **94.6** | **94.4** | **94.2** | **91.5** |
| **4-Bromofluorobenzene** | 460-00-4 | 2 | % | | **93.3** | **92.8** | **94.1** | **93.1** | **90.0** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M25-S | M25-M | M25-B | M31-S | M31-M |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 23-Jan-2017 17:00 | 23-Jan-2017 17:00 | 23-Jan-2017 17:00 | 24-Jan-2017 11:30 | 24-Jan-2017 11:30 |
| Compound | CAS Number | LOR | Unit | | EB1702002-036 | EB1702002-037 | EB1702002-038 | EB1702002-039 | EB1702002-040 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | 1 | <1 | <1 | <1 | <1 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | <5 | <5 | 11 | <5 | <5 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 0.9 | 1.4 | 1.4 | 0.8 | 1.2 |
| Barium | 7440-39-3 | 1 | µg/L | | 11 | 6 | 6 | 10 | 5 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | 0.5 | 0.9 | 1.6 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | 0.6 | 0.7 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 5180 | 6670 | 6800 | 5570 | 6890 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 1.8 | 1.8 | 1.6 | 1.9 | 1.8 |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | 8 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | 48 | <5 | <5 | 8 | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | 81 | 12 | 7 | 18 | 12 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.4 | 1.9 | 2.2 | 1.9 | 2.0 |
| Barium | 7440-39-3 | 1 | µg/L | | 11 | 6 | 6 | 9 | 5 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 5630 | 7160 | 7310 | 5960 | 7170 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 3.4 | 2.7 | 3.1 | 2.5 | 2.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M25-S | M25-M | M25-B | M31-S | M31-M |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 23-Jan-2017 17:00 | 23-Jan-2017 17:00 | 23-Jan-2017 17:00 | 24-Jan-2017 11:30 | 24-Jan-2017 11:30 |
| Compound | CAS Number | LOR | Unit | | EB1702002-036 | EB1702002-037 | EB1702002-038 | EB1702002-039 | EB1702002-040 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | <0.25 | **0.86** | <0.25 | <0.25 | <0.25 |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | **0.12** | <0.05 | **0.07** | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M25-S | M25-M | M25-B | M31-S | M31-M |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 23-Jan-2017 17:00 | 23-Jan-2017 17:00 | 23-Jan-2017 17:00 | 24-Jan-2017 11:30 | 24-Jan-2017 11:30 |
| Compound | CAS Number | LOR | Unit | | EB1702002-036 | EB1702002-037 | EB1702002-038 | EB1702002-039 | EB1702002-040 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **33.1** | **33.0** | **30.3** | **30.2** | **32.8** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **77.2** | **73.6** | **70.9** | **71.6** | **77.3** |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | **90.6** | **84.9** | **80.1** | **83.6** | **88.9** |

## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

| Compound | CAS Number | LOR | Unit | Client sample ID | M25-S | M25-M | M25-B | M31-S | M31-M |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 23-Jan-2017 17:00 | 23-Jan-2017 17:00 | 23-Jan-2017 17:00 | 24-Jan-2017 11:30 | 24-Jan-2017 11:30 |
| | | | | | EB1702002-036 | EB1702002-037 | EB1702002-038 | EB1702002-039 | EB1702002-040 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 1 | % | | **85.0** | **79.2** | **73.3** | **79.2** | **84.1** |
| **Anthracene-d10** | 1719-06-8 | 1 | % | | **81.1** | **77.6** | **71.3** | **76.2** | **79.3** |
| **4-Terphenyl-d14** | 1718-51-0 | 1 | % | | **85.8** | **82.8** | **75.8** | **79.6** | **84.5** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 2 | % | | **122** | **132** | **131** | **129** | **133** |
| **Toluene-D8** | 2037-26-5 | 2 | % | | **94.6** | **93.9** | **94.5** | **91.1** | **89.8** |
| **4-Bromofluorobenzene** | 460-00-4 | 2 | % | | **92.7** | **89.8** | **95.8** | **96.0** | **90.5** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M31-B | M37-S | M37-M | M37-B | M43-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 24-Jan-2017 11:30 | 24-Jan-2017 16:00 | 24-Jan-2017 16:00 | 24-Jan-2017 16:00 | 25-Jan-2017 10:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-041 | EB1702002-042 | EB1702002-043 | EB1702002-044 | EB1702002-045 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | <1 | <1 | <1 | <1 | 2 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | <5 | <5 | 13 | <5 | <5 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.6 | 1.0 | 1.2 | 1.4 | 1.2 |
| Barium | 7440-39-3 | 1 | µg/L | | 4 | 9 | 5 | 5 | 8 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | 10 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | 0.9 | <0.5 | 0.6 |
| Strontium | 7440-24-6 | 10 | µg/L | | 7410 | 6040 | 7200 | 7140 | 6070 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 1.8 | 1.8 | 1.6 | 1.8 | 1.7 |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | 17 | 11 | <5 | <5 | 39 |
| Iron | 7439-89-6 | 5 | µg/L | | 41 | 34 | 10 | 10 | 54 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 2.3 | 1.5 | 1.5 | 2.6 | 2.0 |
| Barium | 7440-39-3 | 1 | µg/L | | 4 | 10 | 6 | 7 | 10 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | 0.6 | 0.8 | 0.9 | 0.6 | 0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 7650 | 6320 | 7380 | 7730 | 6660 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 2.7 | 4.7 | 3.4 | 3.2 | 3.6 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M31-B | M37-S | M37-M | M37-B | M43-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 24-Jan-2017 11:30 | 24-Jan-2017 16:00 | 24-Jan-2017 16:00 | 24-Jan-2017 16:00 | 25-Jan-2017 10:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-041 | EB1702002-042 | EB1702002-043 | EB1702002-044 | EB1702002-045 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | <0.25 | **0.74** | <0.25 | <0.25 | <0.25 |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | **0.02** | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | **0.02** | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | **0.08** | <0.05 | <0.05 | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

| Compound | CAS Number | LOR | Unit | Client sample ID | M31-B | M37-S | M37-M | M37-B | M43-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 24-Jan-2017 11:30 | 24-Jan-2017 16:00 | 24-Jan-2017 16:00 | 24-Jan-2017 16:00 | 25-Jan-2017 10:00 |
| | | | | | EB1702002-041 | EB1702002-042 | EB1702002-043 | EB1702002-044 | EB1702002-045 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| **Indeno(1.2.3.cd)pyrene** | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| **Dibenz(a.h)anthracene** | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| **Benzo(g.h.i)perylene** | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ **Sum of polycyclic aromatic hydrocarbons** | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ **Benzo(a)pyrene TEQ (zero)** | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| **C6 - C9 Fraction** | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| **C10 - C14 Fraction** | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **C15 - C28 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **C29 - C36 Fraction** | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ **C10 - C36 Fraction (sum)** | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| **C6 - C10 Fraction** | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ **C6 - C10 Fraction minus BTEX (F1)** | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| **>C10 - C16 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **>C16 - C34 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **>C34 - C40 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ **>C10 - C40 Fraction (sum)** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ **>C10 - C16 Fraction minus Naphthalene (F2)** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| **Benzene** | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Toluene** | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| **Ethylbenzene** | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| **meta- & para-Xylene** | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| **ortho-Xylene** | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ **Total Xylenes** | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ **Sum of BTEX** | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Naphthalene** | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| **Phenol-d6** | 13127-88-3 | 1 | % | | **35.0** | **48.2** | **46.2** | **43.5** | **39.6** |
| **2-Chlorophenol-D4** | 93951-73-6 | 1 | % | | **78.4** | **91.2** | **87.1** | **86.6** | **86.0** |
| **2.4.6-Tribromophenol** | 118-79-6 | 1 | % | | **89.6** | **80.5** | **73.8** | **69.3** | **71.7** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M31-B | M37-S | M37-M | M37-B | M43-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 24-Jan-2017 11:30 | 24-Jan-2017 16:00 | 24-Jan-2017 16:00 | 24-Jan-2017 16:00 | 25-Jan-2017 10:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-041 | EB1702002-042 | EB1702002-043 | EB1702002-044 | EB1702002-045 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 1 | % | | **83.6** | **90.5** | **86.6** | **85.7** | **88.7** |
| **Anthracene-d10** | 1719-06-8 | 1 | % | | **78.7** | **97.7** | **96.3** | **97.7** | **98.4** |
| **4-Terphenyl-d14** | 1718-51-0 | 1 | % | | **83.1** | **101** | **97.6** | **101** | **103** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 2 | % | | **106** | **105** | **102** | **103** | **104** |
| **Toluene-D8** | 2037-26-5 | 2 | % | | **100.0** | **101** | **99.4** | **96.0** | **97.7** |
| **4-Bromofluorobenzene** | 460-00-4 | 2 | % | | **107** | **109** | **108** | **102** | **106** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M43-M | M43-B | M13-S | M13-M | M13-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jan-2017 10:00 | 25-Jan-2017 10:00 | 25-Jan-2017 12:00 | 25-Jan-2017 12:00 | 25-Jan-2017 12:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-046 | EB1702002-047 | EB1702002-048 | EB1702002-049 | EB1702002-050 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | **1.6** | **1.6** | **1.2** | **1.3** | **1.3** |
| Barium | 7440-39-3 | 1 | µg/L | | **6** | **5** | **8** | **7** | **6** |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | **7000** | **7350** | **5780** | **6210** | **6700** |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | **1.9** | **1.7** | **1.8** | **1.7** | **1.7** |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | <5 | **28** | **10** | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | **13** | **12** | **55** | **21** | **19** |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | **1.9** | **1.7** | **1.6** | **1.6** | **1.5** |
| Barium | 7440-39-3 | 1 | µg/L | | **6** | **6** | **10** | **10** | **8** |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | **7610** | **7920** | **6260** | **6570** | **7200** |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | **2.8** | **2.6** | **2.6** | **2.7** | **2.8** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M43-M | M43-B | M13-S | M13-M | M13-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jan-2017 10:00 | 25-Jan-2017 10:00 | 25-Jan-2017 12:00 | 25-Jan-2017 12:00 | 25-Jan-2017 12:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-046 | EB1702002-047 | EB1702002-048 | EB1702002-049 | EB1702002-050 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | <0.25 | **0.35** | **0.96** | **0.26** | **0.56** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.13** | **0.07** | **0.05** | <0.05 | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | **0.02** | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M43-M | M43-B | M13-S | M13-M | M13-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jan-2017 10:00 | 25-Jan-2017 10:00 | 25-Jan-2017 12:00 | 25-Jan-2017 12:00 | 25-Jan-2017 12:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-046 | EB1702002-047 | EB1702002-048 | EB1702002-049 | EB1702002-050 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **33.6** | **42.6** | **43.1** | **38.5** | **43.6** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **71.9** | **87.5** | **89.5** | **79.7** | **94.7** |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | **59.7** | **69.2** | **71.2** | **62.8** | **82.2** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M43-M | M43-B | M13-S | M13-M | M13-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jan-2017 10:00 | 25-Jan-2017 10:00 | 25-Jan-2017 12:00 | 25-Jan-2017 12:00 | 25-Jan-2017 12:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-046 | EB1702002-047 | EB1702002-048 | EB1702002-049 | EB1702002-050 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 1 | % | | **71.6** | **86.4** | **87.2** | **78.0** | **97.7** |
| **Anthracene-d10** | 1719-06-8 | 1 | % | | **86.2** | **96.5** | **94.7** | **90.0** | **105** |
| **4-Terphenyl-d14** | 1718-51-0 | 1 | % | | **89.8** | **102** | **97.4** | **92.1** | **115** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 2 | % | | **103** | **103** | **105** | **104** | **104** |
| **Toluene-D8** | 2037-26-5 | 2 | % | | **97.7** | **98.8** | **96.2** | **99.4** | **98.3** |
| **4-Bromofluorobenzene** | 460-00-4 | 2 | % | | **104** | **105** | **103** | **107** | **105** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M23-S | M23-B | M22-S | M22-B | M24-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jan-2017 13:00 | 25-Jan-2017 13:00 | 26-Jan-2017 07:30 | 26-Jan-2017 07:30 | 26-Jan-2017 09:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-051 | EB1702002-052 | EB1702002-053 | EB1702002-054 | EB1702002-055 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | <1 | 2 | 2 | 2 | 2 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | 15 | <5 | <5 | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 |
| Barium | 7440-39-3 | 1 | µg/L | | 7 | 8 | 7 | 7 | 8 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | 0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | 1.0 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 6400 | 6410 | 6540 | 6300 | 6470 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 1.8 | 1.6 | 1.7 | 1.8 | 1.8 |
| Zinc | 7440-66-6 | 5 | µg/L | | 7 | 8 | <5 | <5 | 9 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | 9 | 8 | 10 | 18 | 6 |
| Iron | 7439-89-6 | 5 | µg/L | | 32 | 37 | 25 | 42 | 14 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.3 | 1.3 | 1.4 | 2.0 | 1.8 |
| Barium | 7440-39-3 | 1 | µg/L | | 9 | 9 | 9 | 9 | 8 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | 1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | 0.7 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 6720 | 6580 | 6600 | 6630 | 6710 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 2.5 | 2.4 | 2.3 | 2.6 | 3.0 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M23-S | M23-B | M22-S | M22-B | M24-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jan-2017 13:00 | 25-Jan-2017 13:00 | 26-Jan-2017 07:30 | 26-Jan-2017 07:30 | 26-Jan-2017 09:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-051 | EB1702002-052 | EB1702002-053 | EB1702002-054 | EB1702002-055 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | **11** | <5 | <5 | <5 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.53** | **0.62** | **0.71** | **0.77** | **0.63** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.43** | **0.08** | **0.23** | **0.32** | **0.23** |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | **0.02** | <0.01 | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M23-S | M23-B | M22-S | M22-B | M24-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jan-2017 13:00 | 25-Jan-2017 13:00 | 26-Jan-2017 07:30 | 26-Jan-2017 07:30 | 26-Jan-2017 09:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-051 | EB1702002-052 | EB1702002-053 | EB1702002-054 | EB1702002-055 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **40.9** | **35.4** | **37.5** | **36.1** | **39.2** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **84.4** | **78.5** | **78.5** | **73.9** | **86.9** |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | **72.3** | **65.6** | **68.2** | **64.3** | **76.0** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M23-S | M23-B | M22-S | M22-B | M24-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 25-Jan-2017 13:00 | 25-Jan-2017 13:00 | 26-Jan-2017 07:30 | 26-Jan-2017 07:30 | 26-Jan-2017 09:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-051 | EB1702002-052 | EB1702002-053 | EB1702002-054 | EB1702002-055 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 1 | % | | **89.9** | **82.2** | **80.3** | **79.3** | **87.8** |
| **Anthracene-d10** | 1719-06-8 | 1 | % | | **97.4** | **91.2** | **90.9** | **84.3** | **98.8** |
| **4-Terphenyl-d14** | 1718-51-0 | 1 | % | | **108** | **97.5** | **99.6** | **91.2** | **105** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 2 | % | | **102** | **107** | **104** | **104** | **106** |
| **Toluene-D8** | 2037-26-5 | 2 | % | | **99.6** | **104** | **96.6** | **97.2** | **99.4** |
| **4-Bromofluorobenzene** | 460-00-4 | 2 | % | | **103** | **111** | **104** | **107** | **106** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M24-M | M24-B | M15-S | M15-M | M15-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jan-2017 09:00 | 26-Jan-2017 09:00 | 26-Jan-2017 11:00 | 26-Jan-2017 11:00 | 26-Jan-2017 11:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-056 | EB1702002-057 | EB1702002-058 | EB1702002-059 | EB1702002-060 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| **Suspended Solids (SS)** | ---- | 1 | mg/L | | <1 | **2** | <1 | <1 | <1 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Iron** | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **1.2** | **1.4** | **1.2** | **1.3** | **1.4** |
| **Barium** | 7440-39-3 | 1 | µg/L | | **8** | **8** | **9** | **7** | **6** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Cobalt** | 7440-48-4 | 0.1 | µg/L | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **6540** | **6440** | **6020** | **6450** | **6970** |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **1.7** | **1.8** | **1.7** | **1.8** | **1.8** |
| **Zinc** | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | <5 | <5 | **37** | **16** | **12** |
| **Iron** | 7439-89-6 | 5 | µg/L | | **21** | **16** | **69** | **34** | **30** |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **1.5** | **1.4** | **1.5** | **1.6** | **1.5** |
| **Barium** | 7440-39-3 | 1 | µg/L | | **9** | **9** | **10** | **9** | **7** |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **6750** | **6860** | **6220** | **6670** | **7320** |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **2.8** | **2.4** | **2.8** | **2.6** | **3.0** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M24-M | M24-B | M15-S | M15-M | M15-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jan-2017 09:00 | 26-Jan-2017 09:00 | 26-Jan-2017 11:00 | 26-Jan-2017 11:00 | 26-Jan-2017 11:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-056 | EB1702002-057 | EB1702002-058 | EB1702002-059 | EB1702002-060 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.62** | **0.64** | **0.62** | **0.68** | **0.59** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | <0.05 | **0.12** | <0.05 | **0.06** |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | **1** | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

| Compound | CAS Number | LOR | Unit | Client sample ID | M24-M | M24-B | M15-S | M15-M | M15-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jan-2017 09:00 | 26-Jan-2017 09:00 | 26-Jan-2017 11:00 | 26-Jan-2017 11:00 | 26-Jan-2017 11:00 |
| | | | | | EB1702002-056 | EB1702002-057 | EB1702002-058 | EB1702002-059 | EB1702002-060 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| **Indeno(1.2.3.cd)pyrene** | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| **Dibenz(a.h)anthracene** | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| **Benzo(g.h.i)perylene** | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ **Sum of polycyclic aromatic hydrocarbons** | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ **Benzo(a)pyrene TEQ (zero)** | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| **C6 - C9 Fraction** | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| **C10 - C14 Fraction** | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **C15 - C28 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **C29 - C36 Fraction** | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ **C10 - C36 Fraction (sum)** | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| **C6 - C10 Fraction** | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ **C6 - C10 Fraction minus BTEX (F1)** | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| **>C10 - C16 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **>C16 - C34 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **>C34 - C40 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ **>C10 - C40 Fraction (sum)** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ **>C10 - C16 Fraction minus Naphthalene (F2)** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| **Benzene** | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Toluene** | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| **Ethylbenzene** | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| **meta- & para-Xylene** | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| **ortho-Xylene** | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ **Total Xylenes** | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ **Sum of BTEX** | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Naphthalene** | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| **Phenol-d6** | 13127-88-3 | 1 | % | | **36.4** | **40.3** | **37.7** | **42.0** | **27.7** |
| **2-Chlorophenol-D4** | 93951-73-6 | 1 | % | | **78.8** | **82.8** | **84.4** | **82.8** | **54.7** |
| **2.4.6-Tribromophenol** | 118-79-6 | 1 | % | | **67.7** | **70.8** | **68.9** | **70.4** | **86.3** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M24-M | M24-B | M15-S | M15-M | M15-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jan-2017 09:00 | 26-Jan-2017 09:00 | 26-Jan-2017 11:00 | 26-Jan-2017 11:00 | 26-Jan-2017 11:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-056 | EB1702002-057 | EB1702002-058 | EB1702002-059 | EB1702002-060 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 1 | % | | **80.6** | **82.2** | **85.5** | **78.5** | **59.7** |
| **Anthracene-d10** | 1719-06-8 | 1 | % | | **87.8** | **90.7** | **92.9** | **90.4** | **71.2** |
| **4-Terphenyl-d14** | 1718-51-0 | 1 | % | | **94.1** | **96.2** | **99.4** | **95.6** | **89.6** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 2 | % | | **98.7** | **104** | **110** | **109** | **134** |
| **Toluene-D8** | 2037-26-5 | 2 | % | | **97.0** | **98.9** | **98.1** | **101** | **90.2** |
| **4-Bromofluorobenzene** | 460-00-4 | 2 | % | | **103** | **106** | **105** | **109** | **89.1** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M16-S | M16-M | M16-B | M17-S | M17-SD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jan-2017 12:00 | 26-Jan-2017 12:00 | 26-Jan-2017 12:00 | 26-Jan-2017 13:00 | 26-Jan-2017 13:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-061 | EB1702002-062 | EB1702002-063 | EB1702002-064 | EB1702002-065 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | 1 | <1 | <1 | 1 | <1 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | <5 | 5 | <5 | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.2 | 1.0 | 1.1 | 1.0 | 0.9 |
| Barium | 7440-39-3 | 1 | µg/L | | 8 | 8 | 7 | 7 | 7 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 6180 | 6440 | 6800 | 6460 | 6350 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 1.7 | 1.5 | 1.7 | 1.7 | 1.6 |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | 20 | 42 | 13 | 17 | 11 |
| Iron | 7439-89-6 | 5 | µg/L | | 37 | 19 | 31 | 62 | 24 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.3 | 1.6 | 1.3 | 2.2 | 1.8 |
| Barium | 7440-39-3 | 1 | µg/L | | 9 | 9 | 8 | 9 | 9 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | 0.8 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 6420 | 6380 | 6240 | 6660 | 6560 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 2.3 | 3.4 | 1.1 | 3.3 | 2.8 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M16-S | M16-M | M16-B | M17-S | M17-SD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jan-2017 12:00 | 26-Jan-2017 12:00 | 26-Jan-2017 12:00 | 26-Jan-2017 13:00 | 26-Jan-2017 13:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-061 | EB1702002-062 | EB1702002-063 | EB1702002-064 | EB1702002-065 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.58** | **0.61** | **0.45** | **0.50** | **0.53** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.32** | **0.42** | **0.38** | **0.06** | **0.13** |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M16-S | M16-M | M16-B | M17-S | M17-SD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jan-2017 12:00 | 26-Jan-2017 12:00 | 26-Jan-2017 12:00 | 26-Jan-2017 13:00 | 26-Jan-2017 13:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-061 | EB1702002-062 | EB1702002-063 | EB1702002-064 | EB1702002-065 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **19.6** | **35.9** | **38.5** | **29.2** | **42.2** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **51.5** | **81.8** | **76.4** | **63.3** | **81.5** |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | **59.9** | **92.0** | **84.8** | **72.5** | **86.8** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M16-S | M16-M | M16-B | M17-S | M17-SD |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jan-2017 12:00 | 26-Jan-2017 12:00 | 26-Jan-2017 12:00 | 26-Jan-2017 13:00 | 26-Jan-2017 13:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-061 | EB1702002-062 | EB1702002-063 | EB1702002-064 | EB1702002-065 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 1 | % | | 60.6 | 82.2 | 79.6 | 66.6 | 81.6 |
| Anthracene-d10 | 1719-06-8 | 1 | % | | 56.6 | 80.0 | 76.5 | 63.5 | 78.0 |
| 4-Terphenyl-d14 | 1718-51-0 | 1 | % | | 53.2 | 85.7 | 86.5 | 67.9 | 80.3 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 2 | % | | 114 | 97.2 | 106 | 98.3 | 117 |
| Toluene-D8 | 2037-26-5 | 2 | % | | 106 | 94.9 | 98.4 | 93.9 | 100 |
| 4-Bromofluorobenzene | 460-00-4 | 2 | % | | 103 | 103 | 106 | 105 | 105 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M17-B | M19-S | M19-SD | M19-B | M20-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jan-2017 13:00 | 26-Jan-2017 14:10 | 26-Jan-2017 14:10 | 26-Jan-2017 14:10 | 26-Jan-2017 15:30 |
| Compound | CAS Number | LOR | Unit | | EB1702002-066 | EB1702002-067 | EB1702002-068 | EB1702002-069 | EB1702002-070 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | 2 | 2 | <1 | <1 | 1 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | <5 | 5 | <5 | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.1 | 1.2 | 1.1 | 0.9 | 1.1 |
| Barium | 7440-39-3 | 1 | µg/L | | 8 | 7 | 8 | 8 | 9 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 6380 | 6340 | 6290 | 6520 | 6460 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 1.8 | 1.8 | 1.7 | 1.8 | 1.8 |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | 6 | 6 | 6 | 12 | 55 |
| Iron | 7439-89-6 | 5 | µg/L | | 19 | 19 | 19 | 27 | 127 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.4 | 1.4 | 1.4 | 1.8 | 1.3 |
| Barium | 7440-39-3 | 1 | µg/L | | 9 | 8 | 9 | 9 | 10 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | 1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | 0.8 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | 0.7 |
| Strontium | 7440-24-6 | 10 | µg/L | | 6730 | 6160 | 6510 | 6550 | 6400 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 2.4 | 1.6 | 2.2 | 2.3 | 2.4 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M17-B | M19-S | M19-SD | M19-B | M20-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jan-2017 13:00 | 26-Jan-2017 14:10 | 26-Jan-2017 14:10 | 26-Jan-2017 14:10 | 26-Jan-2017 15:30 |
| Compound | CAS Number | LOR | Unit | | EB1702002-066 | EB1702002-067 | EB1702002-068 | EB1702002-069 | EB1702002-070 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.49** | **0.48** | **0.46** | **0.45** | **0.49** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | **0.09** | <0.05 | **0.09** | **0.49** | **0.05** |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

| Compound | CAS Number | LOR | Unit | Client sample ID | M17-B | M19-S | M19-SD | M19-B | M20-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jan-2017 13:00 | 26-Jan-2017 14:10 | 26-Jan-2017 14:10 | 26-Jan-2017 14:10 | 26-Jan-2017 15:30 |
| | | | | | EB1702002-066 | EB1702002-067 | EB1702002-068 | EB1702002-069 | EB1702002-070 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| **Indeno(1.2.3.cd)pyrene** | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| **Dibenz(a.h)anthracene** | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| **Benzo(g.h.i)perylene** | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ **Sum of polycyclic aromatic hydrocarbons** | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ **Benzo(a)pyrene TEQ (zero)** | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| **C6 - C9 Fraction** | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| **C10 - C14 Fraction** | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **C15 - C28 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **C29 - C36 Fraction** | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ **C10 - C36 Fraction (sum)** | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| **C6 - C10 Fraction** | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ **C6 - C10 Fraction minus BTEX (F1)** | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| **>C10 - C16 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **>C16 - C34 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **>C34 - C40 Fraction** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ **>C10 - C40 Fraction (sum)** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ **>C10 - C16 Fraction minus Naphthalene (F2)** | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| **Benzene** | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Toluene** | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| **Ethylbenzene** | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| **meta- & para-Xylene** | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| **ortho-Xylene** | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ **Total Xylenes** | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ **Sum of BTEX** | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| **Naphthalene** | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| **Phenol-d6** | 13127-88-3 | 1 | % | | **32.2** | **39.3** | **29.2** | **30.9** | **34.2** |
| **2-Chlorophenol-D4** | 93951-73-6 | 1 | % | | **73.4** | **84.2** | **70.3** | **66.8** | **73.5** |
| **2.4.6-Tribromophenol** | 118-79-6 | 1 | % | | **83.8** | **94.8** | **82.6** | **79.4** | **87.4** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M17-B | M19-S | M19-SD | M19-B | M20-S |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jan-2017 13:00 | 26-Jan-2017 14:10 | 26-Jan-2017 14:10 | 26-Jan-2017 14:10 | 26-Jan-2017 15:30 |
| Compound | CAS Number | LOR | Unit | | EB1702002-066 | EB1702002-067 | EB1702002-068 | EB1702002-069 | EB1702002-070 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 1 | % | | **75.5** | **79.0** | **72.0** | **71.2** | **75.3** |
| **Anthracene-d10** | 1719-06-8 | 1 | % | | **73.6** | **81.4** | **72.8** | **69.8** | **76.6** |
| **4-Terphenyl-d14** | 1718-51-0 | 1 | % | | **82.8** | **87.0** | **77.6** | **75.2** | **80.6** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 2 | % | | **105** | **99.7** | **101** | **100** | **95.3** |
| **Toluene-D8** | 2037-26-5 | 2 | % | | **98.7** | **98.8** | **101** | **104** | **94.5** |
| **4-Bromofluorobenzene** | 460-00-4 | 2 | % | | **103** | **102** | **113** | **106** | **109** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M20-SD | M20-B | M21-S | M21-SD | M21-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jan-2017 15:30 | 26-Jan-2017 15:30 | 26-Jan-2017 17:00 | 26-Jan-2017 17:00 | 26-Jan-2017 17:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-071 | EB1702002-072 | EB1702002-073 | EB1702002-074 | EB1702002-075 |
| | | | | | Result | Result | Result | Result | Result |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| Suspended Solids (SS) | ---- | 1 | mg/L | | <1 | <1 | <1 | 1 | 2 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Iron | 7439-89-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.1 | 1.0 | 1.2 | 0.9 | 1.1 |
| Barium | 7440-39-3 | 1 | µg/L | | 8 | 8 | 8 | 8 | 8 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.1 | µg/L | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 6320 | 6270 | 6240 | 6230 | 6240 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 1.8 | 1.7 | 1.7 | 1.9 | 1.8 |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| Aluminium | 7429-90-5 | 5 | µg/L | | 47 | 18 | 11 | 15 | 29 |
| Iron | 7439-89-6 | 5 | µg/L | | 86 | 66 | 25 | 32 | 60 |
| Arsenic | 7440-38-2 | 0.5 | µg/L | | 1.8 | 1.8 | 1.5 | 1.7 | 1.3 |
| Barium | 7440-39-3 | 1 | µg/L | | 8 | 12 | 9 | 9 | 9 |
| Cadmium | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chromium | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Cobalt | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper | 7440-50-8 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Lead | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Nickel | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Strontium | 7440-24-6 | 10 | µg/L | | 6340 | 6300 | 6220 | 6260 | 6240 |
| Tin | 7440-31-5 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| Vanadium | 7440-62-2 | 0.5 | µg/L | | 2.4 | 2.2 | 2.2 | 2.3 | 2.6 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M20-SD | M20-B | M21-S | M21-SD | M21-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jan-2017 15:30 | 26-Jan-2017 15:30 | 26-Jan-2017 17:00 | 26-Jan-2017 17:00 | 26-Jan-2017 17:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-071 | EB1702002-072 | EB1702002-073 | EB1702002-074 | EB1702002-075 |
| | | | | | Result | Result | Result | Result | Result |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | | |
| Zinc | 7440-66-6 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | | |
| Ammonia as N | 7664-41-7 | 0.01 | mg/L | | **0.42** | **0.53** | **0.83** | **0.47** | **0.42** |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| Nitrite as N | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| Nitrate as N | 14797-55-8 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| Nitrite + Nitrate as N | ---- | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | | |
| Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | | |
| ^ Total Nitrogen as N | ---- | 0.1 | mg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | | |
| Total Phosphorus as P | ---- | 0.01 | mg/L | | <0.05 | <0.05 | <0.05 | **0.05** | <0.05 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | | |
| Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | | |
| Chlorophyll a | ---- | 1 | mg/m³ | | <1 | <1 | <1 | <1 | <1 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | | |
| Naphthalene | 91-20-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthylene | 208-96-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Acenaphthene | 83-32-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluorene | 86-73-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Phenanthrene | 85-01-8 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Anthracene | 120-12-7 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fluoranthene | 206-44-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Pyrene | 129-00-0 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benz(a)anthracene | 56-55-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chrysene | 218-01-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(b+j)fluoranthene | 205-99-2 205-82-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M20-SD | M20-B | M21-S | M21-SD | M21-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jan-2017 15:30 | 26-Jan-2017 15:30 | 26-Jan-2017 17:00 | 26-Jan-2017 17:00 | 26-Jan-2017 17:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-071 | EB1702002-072 | EB1702002-073 | EB1702002-074 | EB1702002-075 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | <50 | <50 | <50 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | <20 | <20 | <20 |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | <2 | <2 | <2 |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | <1 | <1 | <1 |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | <5 | <5 | <5 |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **28.8** | **31.2** | **32.5** | **35.8** | **30.9** |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **62.3** | **68.4** | **75.3** | **71.6** | **75.5** |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | **74.6** | **79.6** | **82.5** | **80.0** | **89.2** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M20-SD | M20-B | M21-S | M21-SD | M21-B |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 26-Jan-2017 15:30 | 26-Jan-2017 15:30 | 26-Jan-2017 17:00 | 26-Jan-2017 17:00 | 26-Jan-2017 17:00 |
| Compound | CAS Number | LOR | Unit | | EB1702002-071 | EB1702002-072 | EB1702002-073 | EB1702002-074 | EB1702002-075 |
| | | | | | Result | Result | Result | Result | Result |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| 2-Fluorobiphenyl | 321-60-8 | 1 | % | | 64.4 | 70.2 | 72.5 | 75.6 | 78.8 |
| Anthracene-d10 | 1719-06-8 | 1 | % | | 64.8 | 71.7 | 75.2 | 71.6 | 78.0 |
| 4-Terphenyl-d14 | 1718-51-0 | 1 | % | | 68.8 | 76.7 | 68.2 | 77.4 | 82.5 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| 1.2-Dichloroethane-D4 | 17060-07-0 | 2 | % | | 102 | 102 | 114 | 95.7 | 99.2 |
| Toluene-D8 | 2037-26-5 | 2 | % | | 101 | 101 | 100 | 102 | 98.8 |
| 4-Bromofluorobenzene | 460-00-4 | 2 | % | | 104 | 104 | 99.8 | 106 | 103 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M7-S | M7-B | ---- | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 13:00 | 16-Jan-2017 13:00 | ---- | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1702002-076 | EB1702002-077 | -------- | -------- | -------- |
| | | | | | Result | Result | ---- | ---- | ---- |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| **Suspended Solids (SS)** | ---- | 1 | mg/L | | **1** | **4** | ---- | ---- | ---- |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | ---- | ---- | ---- |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | ---- | ---- | ---- |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | <5 | <5 | ---- | ---- | ---- |
| **Iron** | 7439-89-6 | 5 | µg/L | | <5 | <5 | ---- | ---- | ---- |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **1.0** | **1.2** | ---- | ---- | ---- |
| **Barium** | 7440-39-3 | 1 | µg/L | | **8** | **8** | ---- | ---- | ---- |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | ---- | ---- | ---- |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | ---- | ---- | ---- |
| **Cobalt** | 7440-48-4 | 0.1 | µg/L | | <0.1 | <0.1 | ---- | ---- | ---- |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | <1 | ---- | ---- | ---- |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | ---- | ---- | ---- |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | ---- | ---- | ---- |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **6610** | **6780** | ---- | ---- | ---- |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | ---- | ---- | ---- |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **1.6** | **1.7** | ---- | ---- | ---- |
| **Zinc** | 7440-66-6 | 5 | µg/L | | <5 | <5 | ---- | ---- | ---- |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 5 | µg/L | | **25** | **163** | ---- | ---- | ---- |
| **Iron** | 7439-89-6 | 5 | µg/L | | **41** | **240** | ---- | ---- | ---- |
| **Arsenic** | 7440-38-2 | 0.5 | µg/L | | **1.4** | **1.6** | ---- | ---- | ---- |
| **Barium** | 7440-39-3 | 1 | µg/L | | **8** | **8** | ---- | ---- | ---- |
| **Cadmium** | 7440-43-9 | 0.2 | µg/L | | <0.2 | <0.2 | ---- | ---- | ---- |
| **Chromium** | 7440-47-3 | 0.5 | µg/L | | <0.5 | <0.5 | ---- | ---- | ---- |
| **Cobalt** | 7440-48-4 | 0.2 | µg/L | | <0.2 | <0.2 | ---- | ---- | ---- |
| **Copper** | 7440-50-8 | 1 | µg/L | | <1 | <1 | ---- | ---- | ---- |
| **Lead** | 7439-92-1 | 0.2 | µg/L | | <0.2 | <0.2 | ---- | ---- | ---- |
| **Nickel** | 7440-02-0 | 0.5 | µg/L | | <0.5 | <0.5 | ---- | ---- | ---- |
| **Strontium** | 7440-24-6 | 10 | µg/L | | **6220** | **6870** | ---- | ---- | ---- |
| **Tin** | 7440-31-5 | 5 | µg/L | | <5 | <5 | ---- | ---- | ---- |
| **Vanadium** | 7440-62-2 | 0.5 | µg/L | | **2.0** | **2.9** | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | Client sample ID | M7-S | M7-B | ---- | ---- | ---- |
|---|---|---|---|---|---|---|---|---|
| | | | Client sampling date / time | 16-Jan-2017 13:00 | 16-Jan-2017 13:00 | ---- | ---- | ---- |
| Compound | CAS Number | LOR | Unit | EB1702002-076 | EB1702002-077 | -------- | -------- | -------- |
| | | | | Result | Result | ---- | ---- | ---- |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | | |
| **Zinc** | 7440-66-6 | 5 | µg/L | <5 | <5 | ---- | ---- | ---- |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | | |
| **Ammonia as N** | 7664-41-7 | 0.01 | mg/L | <0.25 | **0.33** | ---- | ---- | ---- |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | |
| **Nitrite as N** | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | ---- | ---- | ---- |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | |
| **Nitrate as N** | 14797-55-8 | 0.01 | mg/L | **0.03** | <0.01 | ---- | ---- | ---- |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | |
| **Nitrite + Nitrate as N** | ---- | 0.01 | mg/L | **0.03** | <0.01 | ---- | ---- | ---- |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | | |
| **Total Kjeldahl Nitrogen as N** | ---- | 0.1 | mg/L | <0.5 | <0.5 | ---- | ---- | ---- |
| **EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser** | | | | | | | | |
| **^ Total Nitrogen as N** | ---- | 0.1 | mg/L | <0.5 | <0.5 | ---- | ---- | ---- |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | | |
| **Total Phosphorus as P** | ---- | 0.01 | mg/L | **0.09** | **0.23** | ---- | ---- | ---- |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | | |
| **Reactive Phosphorus as P** | 14265-44-2 | 0.01 | mg/L | <0.01 | <0.01 | ---- | ---- | ---- |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | | |
| **Chlorophyll a** | ---- | 1 | mg/m³ | <1 | **2** | ---- | ---- | ---- |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | |
| **Naphthalene** | 91-20-3 | 1 | µg/L | <1.0 | <1.0 | ---- | ---- | ---- |
| **Acenaphthylene** | 208-96-8 | 1 | µg/L | <1.0 | <1.0 | ---- | ---- | ---- |
| **Acenaphthene** | 83-32-9 | 1 | µg/L | <1.0 | <1.0 | ---- | ---- | ---- |
| **Fluorene** | 86-73-7 | 1 | µg/L | <1.0 | <1.0 | ---- | ---- | ---- |
| **Phenanthrene** | 85-01-8 | 1 | µg/L | <1.0 | <1.0 | ---- | ---- | ---- |
| **Anthracene** | 120-12-7 | 1 | µg/L | <1.0 | <1.0 | ---- | ---- | ---- |
| **Fluoranthene** | 206-44-0 | 1 | µg/L | <1.0 | <1.0 | ---- | ---- | ---- |
| **Pyrene** | 129-00-0 | 1 | µg/L | <1.0 | <1.0 | ---- | ---- | ---- |
| **Benz(a)anthracene** | 56-55-3 | 1 | µg/L | <1.0 | <1.0 | ---- | ---- | ---- |
| **Chrysene** | 218-01-9 | 1 | µg/L | <1.0 | <1.0 | ---- | ---- | ---- |
| **Benzo(b+j)fluoranthene** | 205-99-2 205-82-3 | 1 | µg/L | <1.0 | <1.0 | ---- | ---- | ---- |
| **Benzo(k)fluoranthene** | 207-08-9 | 1 | µg/L | <1.0 | <1.0 | ---- | ---- | ---- |
| **Benzo(a)pyrene** | 50-32-8 | 0.5 | µg/L | <0.5 | <0.5 | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M7-S | M7-B | ---- | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 13:00 | 16-Jan-2017 13:00 | ---- | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1702002-076 | EB1702002-077 | -------- | -------- | -------- |
| | | | | | Result | Result | ---- | ---- | ---- |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | | | |
| Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | | <1.0 | <1.0 | ---- | ---- | ---- |
| ^ Sum of polycyclic aromatic hydrocarbons | ---- | 0.5 | µg/L | | <0.5 | <0.5 | ---- | ---- | ---- |
| ^ Benzo(a)pyrene TEQ (zero) | ---- | 0.5 | µg/L | | <0.5 | <0.5 | ---- | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | | | | |
| C6 - C9 Fraction | ---- | 20 | µg/L | | <20 | <20 | ---- | ---- | ---- |
| C10 - C14 Fraction | ---- | 50 | µg/L | | <50 | <50 | ---- | ---- | ---- |
| C15 - C28 Fraction | ---- | 100 | µg/L | | <100 | <100 | ---- | ---- | ---- |
| C29 - C36 Fraction | ---- | 50 | µg/L | | <50 | <50 | ---- | ---- | ---- |
| ^ C10 - C36 Fraction (sum) | ---- | 50 | µg/L | | <50 | <50 | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | | | |
| C6 - C10 Fraction | C6_C10 | 20 | µg/L | | <20 | <20 | ---- | ---- | ---- |
| ^ C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | | <20 | <20 | ---- | ---- | ---- |
| >C10 - C16 Fraction | ---- | 100 | µg/L | | <100 | <100 | ---- | ---- | ---- |
| >C16 - C34 Fraction | ---- | 100 | µg/L | | <100 | <100 | ---- | ---- | ---- |
| >C34 - C40 Fraction | ---- | 100 | µg/L | | <100 | <100 | ---- | ---- | ---- |
| ^ >C10 - C40 Fraction (sum) | ---- | 100 | µg/L | | <100 | <100 | ---- | ---- | ---- |
| ^ >C10 - C16 Fraction minus Naphthalene (F2) | ---- | 100 | µg/L | | <100 | <100 | ---- | ---- | ---- |
| **EP080: BTEXN** | | | | | | | | | |
| Benzene | 71-43-2 | 1 | µg/L | | <1 | <1 | ---- | ---- | ---- |
| Toluene | 108-88-3 | 2 | µg/L | | <2 | <2 | ---- | ---- | ---- |
| Ethylbenzene | 100-41-4 | 2 | µg/L | | <2 | <2 | ---- | ---- | ---- |
| meta- & para-Xylene | 108-38-3 106-42-3 | 2 | µg/L | | <2 | <2 | ---- | ---- | ---- |
| ortho-Xylene | 95-47-6 | 2 | µg/L | | <2 | <2 | ---- | ---- | ---- |
| ^ Total Xylenes | 1330-20-7 | 2 | µg/L | | <2 | <2 | ---- | ---- | ---- |
| ^ Sum of BTEX | ---- | 1 | µg/L | | <1 | <1 | ---- | ---- | ---- |
| Naphthalene | 91-20-3 | 5 | µg/L | | <5 | <5 | ---- | ---- | ---- |
| **EP075(SIM)S: Phenolic Compound Surrogates** | | | | | | | | | |
| Phenol-d6 | 13127-88-3 | 1 | % | | **28.6** | **29.5** | ---- | ---- | ---- |
| 2-Chlorophenol-D4 | 93951-73-6 | 1 | % | | **68.7** | **66.4** | ---- | ---- | ---- |
| 2.4.6-Tribromophenol | 118-79-6 | 1 | % | | **77.6** | **72.8** | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Client sample ID | M7-S | M7-B | ---- | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Client sampling date / time | 16-Jan-2017 13:00 | 16-Jan-2017 13:00 | ---- | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | EB1702002-076 | EB1702002-077 | -------- | -------- | -------- |
| | | | | | Result | Result | ---- | ---- | ---- |
| **EP075(SIM)T: PAH Surrogates** | | | | | | | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 1 | % | | **70.5** | **64.2** | **----** | **----** | **----** |
| **Anthracene-d10** | 1719-06-8 | 1 | % | | **70.5** | **64.7** | **----** | **----** | **----** |
| **4-Terphenyl-d14** | 1718-51-0 | 1 | % | | **74.7** | **72.4** | **----** | **----** | **----** |
| **EP080S: TPH(V)/BTEX Surrogates** | | | | | | | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 2 | % | | **99.3** | **98.9** | **----** | **----** | **----** |
| **Toluene-D8** | 2037-26-5 | 2 | % | | **101** | **97.2** | **----** | **----** | **----** |
| **4-Bromofluorobenzene** | 460-00-4 | 2 | % | | **107** | **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 | 72 |
| **2-Chlorophenol-D4** | 93951-73-6 | 27 | 130 |
| **2.4.6-Tribromophenol** | 118-79-6 | 19 | 181 |
| **EP075(SIM)T: PAH Surrogates** | | | |
| **2-Fluorobiphenyl** | 321-60-8 | 14 | 146 |
| **Anthracene-d10** | 1719-06-8 | 35 | 137 |
| **4-Terphenyl-d14** | 1718-51-0 | 36 | 154 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | |
| **1.2-Dichloroethane-D4** | 17060-07-0 | 66 | 138 |
| **Toluene-D8** | 2037-26-5 | 79 | 120 |
| **4-Bromofluorobenzene** | 460-00-4 | 74 | 118 |

ALS Environmental

# QUALITY CONTROL REPORT

| | | | |
|---|---|---|---|
| **Work Order** | : **EB1702002** | Page | : 1 of 30 |
| **Amendment** | : **2** | | |
| Client | : **BMT WBM GROUP LTD** | Laboratory | : Environmental Division Brisbane |
| Contact | : MR JEREMY VISSER | Contact | : Customer Services EB |
| Address | : PO BOX 203 SPRING HILL BRISBANE QLD 4004 | Address | : 2 Byth Street Stafford QLD Australia 4053 |
| Telephone | : +61 07 3831 6744 | Telephone | : +61-7-3243 7222 |
| Project | : B21414 Elk | Date Samples Received | : 02-Feb-2017 |
| Order number | : ---- | Date Analysis Commenced | : 03-Feb-2017 |
| C-O-C number | : ---- | Issue Date | : 02-Mar-2017 |
| Sampler | : BRAD HILES, DANIEL MORAN | | |
| Site | : ---- | | |
| Quote number | : BN/250/15 V5 | | |
| No. of samples received | : 77 | | |
| No. of samples analysed | : 77 | | |

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 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* |
|---|---|---|
| Andrew Epps | Senior Inorganic Chemist | WB Water Lab Brisbane, Stafford, QLD |
| Diana Mesa | 2IC Organic Chemist | Brisbane Organics, Stafford, QLD |
| Greg Vogel | Laboratory Manager | Brisbane Inorganics, Stafford, QLD |
| Greg Vogel | Laboratory Manager | WB Water Lab Brisbane, Stafford, QLD |
| Kim McCabe | Senior Inorganic Chemist | WB Water Lab Brisbane, Stafford, QLD |

## 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 (%)* |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 742748)** | | | | | | | | | |
| EB1702002-001 | M6-S | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | <1 | 1 | 0.00 | No Limit |
| EB1702002-011 | M4-S | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | 2 | 2 | 0.00 | No Limit |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 742749)** | | | | | | | | | |
| EB1702002-021 | M8-S | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | <1 | <1 | 0.00 | No Limit |
| EB1702002-031 | M46-M | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | <1 | <1 | 0.00 | No Limit |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 742756)** | | | | | | | | | |
| EB1702002-034 | M45-B | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | 99 | 98 | 1.37 | 0% - 20% |
| EB1702002-045 | M43-S | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | 2 | 2 | 0.00 | No Limit |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 742757)** | | | | | | | | | |
| EB1702002-055 | M24-S | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | 2 | 2 | 0.00 | No Limit |
| EB1702002-065 | M17-SD | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | <1 | 1 | 0.00 | No Limit |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 742758)** | | | | | | | | | |
| EB1702002-075 | M21-B | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | 2 | 2 | 0.00 | No Limit |
| **EG035F: Dissolved Mercury by FIMS (QC Lot: 743708)** | | | | | | | | | |
| EB1702002-003 | M3-S | EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| EB1702002-011 | M4-S | EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| **EG035F: Dissolved Mercury by FIMS (QC Lot: 743709)** | | | | | | | | | |
| EB1702002-023 | M11-S | EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| EB1702002-031 | M46-M | EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| **EG035F: Dissolved Mercury by FIMS (QC Lot: 743719)** | | | | | | | | | |
| EB1702002-044 | M37-B | EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| EB1702002-052 | M23-B | EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| **EG035F: Dissolved Mercury by FIMS (QC Lot: 743720)** | | | | | | | | | |

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 (%)* |
| **EG035F: Dissolved Mercury by FIMS (QC Lot: 743720) - continued** | | | | | | | | | |
| EB1702002-064 | M17-S | EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| EB1702002-072 | M20-B | EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| **EG035T: Total Recoverable Mercury by FIMS (QC Lot: 743620)** | | | | | | | | | |
| EB1702002-003 | M3-S | EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| EB1702002-012 | M4-M | EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| **EG035T: Total Recoverable Mercury by FIMS (QC Lot: 743621)** | | | | | | | | | |
| EB1702002-023 | M11-S | EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| EB1702002-032 | M46-B | EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| **EG035T: Total Recoverable Mercury by FIMS (QC Lot: 743624)** | | | | | | | | | |
| EB1702002-044 | M37-B | EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| EB1702002-052 | M23-B | EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| **EG035T: Total Recoverable Mercury by FIMS (QC Lot: 743625)** | | | | | | | | | |
| EB1702002-064 | M17-S | EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| EB1702002-072 | M20-B | EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 743593)** | | | | | | | | | |
| EB1702002-001 | M6-S | EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| EB1702002-010 | M10-B | EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 743594)** | | | | | | | | | |
| EB1702002-001 | M6-S | EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | 0.3 | 0.3 | 0.00 | No Limit |
| | | EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.0 | 0.9 | 12.3 | No Limit |
| | | EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | 1.8 | 2.0 | 9.47 | No Limit |
| | | EG093A-F: Barium | 7440-39-3 | 1 | µg/L | 13 | 13 | 0.00 | 0% - 50% |
| | | EG093A-F: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | 5620 | 5770 | 2.69 | 0% - 20% |
| | | EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | 6 | 5 | 0.00 | No Limit |
| EB1702002-010 | M10-B | EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.2 | 1.3 | 14.0 | No Limit |
| | | EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | 1.6 | 1.5 | 9.81 | No Limit |
| | | EG093A-F: Barium | 7440-39-3 | 1 | µg/L | 6 | 6 | 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 (%)* |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 743594) - continued** | | | | | | | | | |
| EB1702002-010 | M10-B | EG093A-F: Copper | 7440-50-8 | 1 | µg/L | 1 | <1 | 0.00 | No Limit |
| | | EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | 6940 | 6820 | 1.77 | 0% - 20% |
| | | EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 743595)** | | | | | | | | | |
| EB1702002-021 | M8-S | EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | 0.9 | 1.1 | 13.9 | No Limit |
| | | EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | 1.6 | 1.7 | 0.00 | No Limit |
| | | EG093A-F: Barium | 7440-39-3 | 1 | µg/L | 8 | 8 | 0.00 | No Limit |
| | | EG093A-F: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | 6330 | 6460 | 2.09 | 0% - 20% |
| | | EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| EB1702002-030 | M46-S | EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.1 | 1.1 | 0.00 | No Limit |
| | | EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | 2.0 | 2.0 | 0.00 | No Limit |
| | | EG093A-F: Barium | 7440-39-3 | 1 | µg/L | 13 | 14 | 0.00 | 0% - 50% |
| | | EG093A-F: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | 5380 | 5410 | 0.554 | 0% - 20% |
| | | EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | 6 | <5 | 0.00 | No Limit |
| | | EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 743596)** | | | | | | | | | |
| EB1702002-021 | M8-S | EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| EB1702002-030 | M46-S | EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 743597)** | | | | | | | | | |
| EB1702002-042 | M37-S | EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.0 | 1.1 | 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 (%)* |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 743597) - continued** | | | | | | | | | |
| EB1702002-042 | M37-S | EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | 1.8 | 1.8 | 0.00 | No Limit |
| | | EG093A-F: Barium | 7440-39-3 | 1 | µg/L | 9 | 9 | 0.00 | No Limit |
| | | EG093A-F: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | 6040 | 6040 | 0.137 | 0% - 20% |
| | | EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| EB1702002-051 | M23-S | EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.3 | 1.3 | 0.00 | No Limit |
| | | EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | 1.8 | 1.7 | 0.00 | No Limit |
| | | EG093A-F: Barium | 7440-39-3 | 1 | µg/L | 7 | 7 | 0.00 | No Limit |
| | | EG093A-F: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | 6400 | 6440 | 0.582 | 0% - 20% |
| | | EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | 7 | 6 | 15.9 | No Limit |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 743598)** | | | | | | | | | |
| EB1702002-042 | M37-S | EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| EB1702002-051 | M23-S | EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 743599)** | | | | | | | | | |
| EB1702002-062 | M16-M | EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.0 | 1.0 | 0.00 | No Limit |
| | | EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | 1.5 | 1.8 | 17.4 | No Limit |
| | | EG093A-F: Barium | 7440-39-3 | 1 | µg/L | 8 | 8 | 0.00 | No Limit |
| | | EG093A-F: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | 6440 | 6370 | 1.18 | 0% - 20% |
| | | EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| EB1702002-071 | M20-SD | EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 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 (%)* |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 743599) - continued** | | | | | | | | | |
| EB1702002-071 | M20-SD | EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.1 | <0.1 | 0.00 | No Limit |
| | | EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.1 | 1.2 | 0.00 | No Limit |
| | | EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | 1.8 | 1.6 | 9.18 | No Limit |
| | | EG093A-F: Barium | 7440-39-3 | 1 | µg/L | 8 | 9 | 0.00 | No Limit |
| | | EG093A-F: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | 6320 | 6310 | 0.206 | 0% - 20% |
| | | EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 743600)** | | | | | | | | | |
| EB1702002-062 | M16-M | EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| EB1702002-071 | M20-SD | EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 743603)** | | | | | | | | | |
| EB1702002-001 | M6-S | EG093B-T: Iron | 7439-89-6 | 5 | µg/L | 45 | 44 | 0.00 | No Limit |
| EB1702002-010 | M10-B | EG093B-T: Iron | 7439-89-6 | 5 | µg/L | 13 | 14 | 0.00 | No Limit |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 743604)** | | | | | | | | | |
| EB1702002-001 | M6-S | EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | 0.3 | 0.3 | 0.00 | No Limit |
| | | EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | 2.1 | 1.3 | 42.7 | No Limit |
| | | EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | 5.4 | 3.3 | 48.9 | 0% - 50% |
| | | EG093A-T: Barium | 7440-39-3 | 1 | µg/L | 13 | 16 | 17.6 | 0% - 50% |
| | | EG093A-T: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | 5840 | 6060 | 3.67 | 0% - 20% |
| | | EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | 27 | 27 | 0.00 | No Limit |
| | | EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| EB1702002-010 | M10-B | EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.5 | 1.5 | 0.00 | No Limit |
| | | EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | 2.5 | 2.4 | 0.00 | No Limit |
| | | EG093A-T: Barium | 7440-39-3 | 1 | µg/L | 7 | 7 | 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 (%)* |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 743604) - continued** | | | | | | | | | |
| EB1702002-010 | M10-B | EG093A-T: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | 6720 | 6800 | 1.25 | 0% - 20% |
| | | EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 743605)** | | | | | | | | | |
| EB1702002-021 | M8-S | EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.9 | 1.6 | 13.6 | No Limit |
| | | EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | 4.2 | 3.4 | 22.2 | No Limit |
| | | EG093A-T: Barium | 7440-39-3 | 1 | µg/L | 8 | 8 | 0.00 | No Limit |
| | | EG093A-T: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | 6730 | 6760 | 0.330 | 0% - 20% |
| | | EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 7 | 26.6 | No Limit |
| | | EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| EB1702002-030 | M46-S | EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.6 | 1.6 | 0.00 | No Limit |
| | | EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 0.7 | 27.6 | No Limit |
| | | EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | 2.8 | 3.0 | 7.70 | No Limit |
| | | EG093A-T: Barium | 7440-39-3 | 1 | µg/L | 13 | 13 | 0.00 | 0% - 50% |
| | | EG093A-T: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | 5560 | 5730 | 2.93 | 0% - 20% |
| | | EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | 73 | 78 | 5.80 | 0% - 50% |
| | | EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 743606)** | | | | | | | | | |
| EB1702002-021 | M8-S | EG093B-T: Iron | 7439-89-6 | 5 | µg/L | 12 | 12 | 0.00 | No Limit |
| EB1702002-030 | M46-S | EG093B-T: Iron | 7439-89-6 | 5 | µg/L | 95 | 99 | 3.82 | 0% - 50% |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 743616)** | | | | | | | | | |
| EB1702002-042 | M37-S | EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.5 | 1.4 | 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 (%)* |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 743616) - continued** | | | | | | | | | |
| EB1702002-042 | M37-S | EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | 0.8 | 1.1 | 32.3 | No Limit |
| | | EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | 4.7 | 3.0 | 42.5 | No Limit |
| | | EG093A-T: Barium | 7440-39-3 | 1 | µg/L | 10 | 10 | 0.00 | No Limit |
| | | EG093A-T: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | 6320 | 6450 | 2.09 | 0% - 20% |
| | | EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | 11 | 12 | 0.00 | No Limit |
| | | EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| EB1702002-051 | M23-S | EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.3 | 1.6 | 23.4 | No Limit |
| | | EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | 2.5 | 2.3 | 9.78 | No Limit |
| | | EG093A-T: Barium | 7440-39-3 | 1 | µg/L | 9 | 8 | 0.00 | No Limit |
| | | EG093A-T: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | 6720 | 6780 | 0.886 | 0% - 20% |
| | | EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | 9 | 7 | 17.4 | No Limit |
| | | EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 743617)** | | | | | | | | | |
| EB1702002-042 | M37-S | EG093B-T: Iron | 7439-89-6 | 5 | µg/L | 34 | 47 | 31.6 | No Limit |
| EB1702002-051 | M23-S | EG093B-T: Iron | 7439-89-6 | 5 | µg/L | 32 | 20 | 47.4 | No Limit |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 743618)** | | | | | | | | | |
| EB1702002-062 | M16-M | EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.6 | 1.3 | 20.6 | No Limit |
| | | EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | 3.4 | 1.8 | 59.2 | No Limit |
| | | EG093A-T: Barium | 7440-39-3 | 1 | µg/L | 9 | 9 | 0.00 | No Limit |
| | | EG093A-T: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | 6380 | 6530 | 2.38 | 0% - 20% |
| | | EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | 42 | 11 | 118 | No Limit |
| | | EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| EB1702002-071 | M20-SD | EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | <0.2 | 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 (%)* |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 743618) - continued** | | | | | | | | | |
| EB1702002-071 | M20-SD | EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | <0.2 | 0.00 | No Limit |
| | | EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | 1.8 | 1.5 | 17.3 | No Limit |
| | | EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
| | | EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 1.0 | 60.7 | No Limit |
| | | EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | 2.4 | 2.7 | 12.2 | No Limit |
| | | EG093A-T: Barium | 7440-39-3 | 1 | µg/L | 8 | 9 | 12.4 | No Limit |
| | | EG093A-T: Copper | 7440-50-8 | 1 | µg/L | <1 | <1 | 0.00 | No Limit |
| | | EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | 6340 | 6240 | 1.72 | 0% - 20% |
| | | EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | 47 | 46 | 0.00 | No Limit |
| | | EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| | | EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | <5 | 0.00 | No Limit |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 743619)** | | | | | | | | | |
| EB1702002-062 | M16-M | EG093B-T: Iron | 7439-89-6 | 5 | µg/L | 19 | 18 | 0.00 | No Limit |
| EB1702002-071 | M20-SD | EG093B-T: Iron | 7439-89-6 | 5 | µg/L | 86 | 93 | 8.09 | 0% - 50% |
| **EK055G: Ammonia as N by Discrete Analyser (QC Lot: 742891)** | | | | | | | | | |
| EB1702002-001 | M6-S | EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | <0.25 | <0.25 | 0.00 | No Limit |
| EB1702002-011 | M4-S | EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | 0.66 | 0.83 | 23.4 | No Limit |
| **EK055G: Ammonia as N by Discrete Analyser (QC Lot: 742893)** | | | | | | | | | |
| EB1702002-021 | M8-S | EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | 0.64 | 0.70 | 8.84 | No Limit |
| **EK055G: Ammonia as N by Discrete Analyser (QC Lot: 742895)** | | | | | | | | | |
| EB1702002-026 | M11-B | EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | 0.74 | 0.71 | 4.03 | No Limit |
| EB1702002-037 | M25-M | EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | 0.86 | 0.88 | 2.39 | No Limit |
| **EK055G: Ammonia as N by Discrete Analyser (QC Lot: 742897)** | | | | | | | | | |
| EB1702002-047 | M43-B | EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | 0.35 | 0.33 | 5.46 | No Limit |
| **EK055G: Ammonia as N by Discrete Analyser (QC Lot: 742900)** | | | | | | | | | |
| EB1702002-050 | M13-B | EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | 0.56 | 0.55 | 2.01 | No Limit |
| EB1702002-060 | M15-B | EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | 0.59 | 0.57 | 2.93 | No Limit |
| **EK055G: Ammonia as N by Discrete Analyser (QC Lot: 742902)** | | | | | | | | | |
| EB1702002-070 | M20-S | EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | 0.49 | 0.44 | 9.16 | No Limit |
| **EK057G: Nitrite as N by Discrete Analyser (QC Lot: 742645)** | | | | | | | | | |
| EB1702002-001 | M6-S | EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| EB1702002-011 | M4-S | EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK057G: Nitrite as N by Discrete Analyser (QC Lot: 742646)** | | | | | | | | | |
| EB1702002-021 | M8-S | EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK057G: Nitrite as N by Discrete Analyser (QC Lot: 742648)** | | | | | | | | | |
| EB1702002-026 | M11-B | EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| EB1702002-037 | M25-M | EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | 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 (%)* |
| **EK057G: Nitrite as N by Discrete Analyser (QC Lot: 742650)** | | | | | | | | | |
| EB1702002-047 | M43-B | EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK057G: Nitrite as N by Discrete Analyser (QC Lot: 742656)** | | | | | | | | | |
| EB1702002-050 | M13-B | EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| EB1702002-060 | M15-B | EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK057G: Nitrite as N by Discrete Analyser (QC Lot: 742658)** | | | | | | | | | |
| EB1702002-070 | M20-S | EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 742892)** | | | | | | | | | |
| EB1702002-001 | M6-S | EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| EB1702002-011 | M4-S | EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 742894)** | | | | | | | | | |
| EB1702002-021 | M8-S | EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 742896)** | | | | | | | | | |
| EB1702002-026 | M11-B | EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| EB1702002-037 | M25-M | EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 742898)** | | | | | | | | | |
| EB1702002-047 | M43-B | EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | 0.01 | 0.00 | No Limit |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 742901)** | | | | | | | | | |
| EB1702002-050 | M13-B | EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| EB1702002-060 | M15-B | EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 742903)** | | | | | | | | | |
| EB1702002-070 | M20-S | EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 743943)** | | | | | | | | | |
| EB1702002-001 | M6-S | EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.5 | <0.5 | 0.00 | No Limit |
| EB1702002-011 | M4-S | EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.5 | <0.5 | 0.00 | No Limit |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 744009)** | | | | | | | | | |
| EB1702002-021 | M8-S | EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.5 | <0.5 | 0.00 | No Limit |
| EB1702002-031 | M46-M | EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.5 | <0.5 | 0.00 | No Limit |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 744657)** | | | | | | | | | |
| EB1701993-001 | Anonymous | EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | 0.2 | 0.2 | 0.00 | No Limit |
| EB1701993-011 | Anonymous | EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.5 | <0.5 | 0.00 | No Limit |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 744659)** | | | | | | | | | |
| EB1702002-048 | M13-S | EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.5 | <0.5 | 0.00 | No Limit |
| EB1702002-058 | M15-S | EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.5 | <0.5 | 0.00 | No Limit |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 744661)** | | | | | | | | | |
| EB1702002-068 | M19-SD | EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.5 | <0.5 | 0.00 | No Limit |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 743942)** | | | | | | | | | |
| EB1702002-001 | M6-S | EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.05 | <0.05 | 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 (%)* |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 743942) - continued** | | | | | | | | | |
| EB1702002-011 | M4-S | EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.05 | <0.05 | 0.00 | No Limit |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 744008)** | | | | | | | | | |
| EB1702002-021 | M8-S | EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.05 | 0.19 | 118 | No Limit |
| EB1702002-031 | M46-M | EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.05 | 0.06 | 22.2 | No Limit |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 744656)** | | | | | | | | | |
| EB1701993-001 | Anonymous | EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | 0.07 | 0.08 | 0.00 | No Limit |
| EB1701993-011 | Anonymous | EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | 0.08 | 0.07 | 0.00 | No Limit |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 744658)** | | | | | | | | | |
| EB1702002-048 | M13-S | EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | 0.05 | 0.20 | 121 | No Limit |
| EB1702002-058 | M15-S | EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | 0.12 | <0.05 | 83.0 | No Limit |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 744660)** | | | | | | | | | |
| EB1702002-068 | M19-SD | EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | 0.09 | 0.36 | 117 | No Limit |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 742644)** | | | | | | | | | |
| EB1702002-001 | M6-S | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| EB1702002-011 | M4-S | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 742647)** | | | | | | | | | |
| EB1702002-021 | M8-S | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 742649)** | | | | | | | | | |
| EB1702002-026 | M11-B | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| EB1702002-037 | M25-M | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 742651)** | | | | | | | | | |
| EB1702002-047 | M43-B | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 742657)** | | | | | | | | | |
| EB1702002-050 | M13-B | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| EB1702002-060 | M15-B | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 742659)** | | | | | | | | | |
| EB1702002-070 | M20-S | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | <0.01 | 0.00 | No Limit |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 742347)** | | | | | | | | | |
| EB1702002-001 | M6-S | EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| EB1702002-011 | M4-S | EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 742351)** | | | | | | | | | |
| EB1702002-021 | M8-S | EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| EB1702002-032 | M46-B | EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 742353)** | | | | | | | | | |
| EB1702002-041 | M31-B | EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| EB1702002-051 | M23-S | EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 742355)** | | | | | | | | | |

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 (%)* |
| **EP080/071: Total Petroleum Hydrocarbons (QC Lot: 742355) - continued** | | | | | | | | | |
| EB1702002-061 | M16-S | EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| EB1702002-071 | M20-SD | EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 742347)** | | | | | | | | | |
| EB1702002-001 | M6-S | EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| EB1702002-011 | M4-S | EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 742351)** | | | | | | | | | |
| EB1702002-021 | M8-S | EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| EB1702002-032 | M46-B | EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 742353)** | | | | | | | | | |
| EB1702002-041 | M31-B | EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| EB1702002-051 | M23-S | EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 742355)** | | | | | | | | | |
| EB1702002-061 | M16-S | EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| EB1702002-071 | M20-SD | EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | <20 | 0.00 | No Limit |
| **EP080: BTEXN (QC Lot: 742347)** | | | | | | | | | |
| EB1702002-001 | M6-S | 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<br>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 |
| EB1702002-011 | M4-S | 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<br>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 |
| **EP080: BTEXN (QC Lot: 742351)** | | | | | | | | | |
| EB1702002-021 | M8-S | 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<br>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 |
| EB1702002-032 | M46-B | 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 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: 742351) - continued** | | | | | | | | | |
| EB1702002-032 | M46-B | EP080: Ethylbenzene | 100-41-4 | 2 | µg/L | <2 | <2 | 0.00 | No Limit |
| | | EP080: meta- & para-Xylene | 108-38-3<br>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 |
| **EP080: BTEXN (QC Lot: 742353)** | | | | | | | | | |
| EB1702002-041 | M31-B | 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<br>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 |
| EB1702002-051 | M23-S | 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<br>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 |
| **EP080: BTEXN (QC Lot: 742355)** | | | | | | | | | |
| EB1702002-061 | M16-S | 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<br>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 |
| EB1702002-071 | M20-SD | 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<br>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 |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 742748)** | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 1 | mg/L | <1 | 150 mg/L | 103 | 84 | 120 |
| | | | | <1 | 1000 mg/L | 92.3 | 84 | 120 |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 742749)** | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 1 | mg/L | <1 | 150 mg/L | 99.2 | 84 | 120 |
| | | | | <1 | 1000 mg/L | 91.1 | 84 | 120 |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 742756)** | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 1 | mg/L | <1 | 150 mg/L | 107 | 84 | 120 |
| | | | | <1 | 1000 mg/L | 91.4 | 84 | 120 |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 742757)** | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 1 | mg/L | <1 | 150 mg/L | 103 | 84 | 120 |
| | | | | <1 | 1000 mg/L | 93.2 | 84 | 120 |
| **EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 742758)** | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 1 | mg/L | <1 | 150 mg/L | 102 | 84 | 120 |
| | | | | <1 | 1000 mg/L | 90.1 | 84 | 120 |
| **EG035F: Dissolved Mercury by FIMS (QCLot: 743708)** | | | | | | | | |
| EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | 0.01 mg/L | 93.1 | 84 | 118 |
| **EG035F: Dissolved Mercury by FIMS (QCLot: 743709)** | | | | | | | | |
| EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | 0.01 mg/L | 94.2 | 84 | 118 |
| **EG035F: Dissolved Mercury by FIMS (QCLot: 743719)** | | | | | | | | |
| EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | 0.01 mg/L | 95.5 | 84 | 118 |
| **EG035F: Dissolved Mercury by FIMS (QCLot: 743720)** | | | | | | | | |
| EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | 0.01 mg/L | 95.4 | 84 | 118 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 743620)** | | | | | | | | |
| EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | 0.01 mg/L | 92.6 | 80 | 100 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 743621)** | | | | | | | | |
| EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | 0.01 mg/L | 90.5 | 80 | 100 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 743624)** | | | | | | | | |
| EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | 0.01 mg/L | 89.1 | 80 | 100 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 743625)** | | | | | | | | |
| EG035T: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | 0.01 mg/L | 84.6 | 80 | 100 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 743593)** | | | | | | | | |
| EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | 50 µg/L | 85.0 | 78 | 123 |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 743594)** | | | | | | | | |
| EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 89.7 | 85 | 118 |
| EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 87.7 | 87 | 116 |
| EG093A-F: Barium | 7440-39-3 | 1 | µg/L | <1 | 50 µg/L | 89.5 | 87 | 114 |
| EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | 10 µg/L | 99.2 | 88 | 114 |
| EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | 10 µg/L | 88.2 | 83 | 115 |
| EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | 10 µg/L | 91.3 | 86 | 116 |
| EG093A-F: Copper | 7440-50-8 | 1 | µg/L | <1 | 20 µg/L | 102 | 81 | 117 |
| EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | 10 µg/L | 105 | 80 | 117 |
| EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 90.4 | 87 | 117 |
| EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | <10 | 50 µg/L | 91.1 | 85 | 117 |
| EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | 10 µg/L | 103 | 82 | 118 |
| EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 93.1 | 89 | 117 |
| EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | 20 µg/L | 96.8 | 81 | 120 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 743595)** | | | | | | | | |
| EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 105 | 85 | 118 |
| EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 89.2 | 87 | 116 |
| EG093A-F: Barium | 7440-39-3 | 1 | µg/L | <1 | 50 µg/L | 90.3 | 87 | 114 |
| EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | 10 µg/L | 103 | 88 | 114 |
| EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | 10 µg/L | 90.6 | 83 | 115 |
| EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | 10 µg/L | 91.9 | 86 | 116 |
| EG093A-F: Copper | 7440-50-8 | 1 | µg/L | <1 | 20 µg/L | 103 | 81 | 117 |
| EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | 10 µg/L | 100 | 80 | 117 |
| EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 92.6 | 87 | 117 |
| EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | <10 | 50 µg/L | 91.0 | 85 | 117 |
| EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | 10 µg/L | 102 | 82 | 118 |
| EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 89.8 | 89 | 117 |
| EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | 20 µg/L | 96.0 | 81 | 120 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 743596)** | | | | | | | | |
| EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | 50 µg/L | 88.8 | 78 | 123 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 743597)** | | | | | | | | |
| EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 91.1 | 85 | 118 |
| EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 96.4 | 87 | 116 |
| EG093A-F: Barium | 7440-39-3 | 1 | µg/L | <1 | 50 µg/L | 93.3 | 87 | 114 |
| EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | 10 µg/L | 100 | 88 | 114 |
| EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | 10 µg/L | 86.0 | 83 | 115 |
| EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | 10 µg/L | 102 | 86 | 116 |
| EG093A-F: Copper | 7440-50-8 | 1 | µg/L | <1 | 20 µg/L | 100 | 81 | 117 |
| EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | 10 µg/L | 103 | 80 | 117 |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 743597) - continued** | | | | | | | | |
| EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 98.8 | 87 | 117 |
| EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | <10 | 50 µg/L | 94.4 | 85 | 117 |
| EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | 10 µg/L | 100 | 82 | 118 |
| EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 94.7 | 89 | 117 |
| EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | 20 µg/L | 85.8 | 81 | 120 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 743598)** | | | | | | | | |
| EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | 50 µg/L | 91.7 | 78 | 123 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 743599)** | | | | | | | | |
| EG093A-F: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 104 | 85 | 118 |
| EG093A-F: Arsenic | 7440-38-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 88.4 | 87 | 116 |
| EG093A-F: Barium | 7440-39-3 | 1 | µg/L | <1 | 50 µg/L | 96.7 | 87 | 114 |
| EG093A-F: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | 10 µg/L | 106 | 88 | 114 |
| EG093A-F: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | 10 µg/L | 92.6 | 83 | 115 |
| EG093A-F: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | 10 µg/L | 95.0 | 86 | 116 |
| EG093A-F: Copper | 7440-50-8 | 1 | µg/L | <1 | 20 µg/L | 106 | 81 | 117 |
| EG093A-F: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | 10 µg/L | 105 | 80 | 117 |
| EG093A-F: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 92.2 | 87 | 117 |
| EG093A-F: Strontium | 7440-24-6 | 10 | µg/L | <10 | 50 µg/L | 97.1 | 85 | 117 |
| EG093A-F: Tin | 7440-31-5 | 5 | µg/L | <5 | 10 µg/L | 107 | 82 | 118 |
| EG093A-F: Vanadium | 7440-62-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 94.5 | 89 | 117 |
| EG093A-F: Zinc | 7440-66-6 | 5 | µg/L | <5 | 20 µg/L | 82.9 | 81 | 120 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 743600)** | | | | | | | | |
| EG093B-F: Iron | 7439-89-6 | 5 | µg/L | <5 | 50 µg/L | 91.9 | 78 | 123 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 743603)** | | | | | | | | |
| EG093B-T: Iron | 7439-89-6 | 5 | µg/L | <5 | 50 µg/L | 87.1 | 80 | 128 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 743604)** | | | | | | | | |
| EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 89.6 | 85 | 120 |
| EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 102 | 86 | 117 |
| EG093A-T: Barium | 7440-39-3 | 1 | µg/L | <1 | 50 µg/L | 92.3 | 84 | 118 |
| EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | 10 µg/L | 105 | 84 | 115 |
| EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | 10 µg/L | 98.4 | 84 | 120 |
| EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | 10 µg/L | 96.9 | 85 | 116 |
| EG093A-T: Copper | 7440-50-8 | 1 | µg/L | <1 | 20 µg/L | 95.4 | 84 | 119 |
| EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | 10 µg/L | 106 | 84 | 120 |
| EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 96.7 | 80 | 120 |
| EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | <10 | 50 µg/L | 93.3 | 83 | 117 |
| EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | 10 µg/L | 94.7 | 83 | 114 |
| EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 91.3 | 84 | 120 |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 743604) - continued** | | | | | | | | |
| EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | 20 µg/L | 108 | 81 | 124 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 743605)** | | | | | | | | |
| EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 89.5 | 85 | 120 |
| EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 95.1 | 86 | 117 |
| EG093A-T: Barium | 7440-39-3 | 1 | µg/L | <1 | 50 µg/L | 89.0 | 84 | 118 |
| EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | 10 µg/L | 93.9 | 84 | 115 |
| EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | 10 µg/L | 96.2 | 84 | 120 |
| EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | 10 µg/L | 95.0 | 85 | 116 |
| EG093A-T: Copper | 7440-50-8 | 1 | µg/L | <1 | 20 µg/L | 88.1 | 84 | 119 |
| EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | 10 µg/L | 110 | 84 | 120 |
| EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 93.1 | 80 | 120 |
| EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | <10 | 50 µg/L | 96.5 | 83 | 117 |
| EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | 10 µg/L | 101 | 83 | 114 |
| EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 112 | 84 | 120 |
| EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | 20 µg/L | 95.5 | 81 | 124 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 743606)** | | | | | | | | |
| EG093B-T: Iron | 7439-89-6 | 5 | µg/L | <5 | 50 µg/L | 95.2 | 80 | 128 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 743616)** | | | | | | | | |
| EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 104 | 85 | 120 |
| EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 98.1 | 86 | 117 |
| EG093A-T: Barium | 7440-39-3 | 1 | µg/L | <1 | 50 µg/L | 95.9 | 84 | 118 |
| EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | 10 µg/L | 108 | 84 | 115 |
| EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | 10 µg/L | 103 | 84 | 120 |
| EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | 10 µg/L | 101 | 85 | 116 |
| EG093A-T: Copper | 7440-50-8 | 1 | µg/L | <1 | 20 µg/L | 105 | 84 | 119 |
| EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | 10 µg/L | 112 | 84 | 120 |
| EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 110 | 80 | 120 |
| EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | <10 | 50 µg/L | 98.7 | 83 | 117 |
| EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | 10 µg/L | 97.4 | 83 | 114 |
| EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 107 | 84 | 120 |
| EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | 20 µg/L | 116 | 81 | 124 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 743617)** | | | | | | | | |
| EG093B-T: Iron | 7439-89-6 | 5 | µg/L | <5 | 50 µg/L | 99.8 | 80 | 128 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 743618)** | | | | | | | | |
| EG093A-T: Aluminium | 7429-90-5 | 5 | µg/L | <5 | 50 µg/L | 89.4 | 85 | 120 |
| EG093A-T: Arsenic | 7440-38-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 92.9 | 86 | 117 |
| EG093A-T: Barium | 7440-39-3 | 1 | µg/L | <1 | 50 µg/L | 96.1 | 84 | 118 |
| EG093A-T: Cadmium | 7440-43-9 | 0.2 | µg/L | <0.2 | 10 µg/L | 105 | 84 | 115 |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 743618) - continued** | | | | | | | | |
| EG093A-T: Chromium | 7440-47-3 | 0.5 | µg/L | <0.5 | 10 µg/L | 93.9 | 84 | 120 |
| EG093A-T: Cobalt | 7440-48-4 | 0.2 | µg/L | <0.2 | 10 µg/L | 90.8 | 85 | 116 |
| EG093A-T: Copper | 7440-50-8 | 1 | µg/L | <1 | 20 µg/L | 86.1 | 84 | 119 |
| EG093A-T: Lead | 7439-92-1 | 0.2 | µg/L | <0.2 | 10 µg/L | 112 | 84 | 120 |
| EG093A-T: Nickel | 7440-02-0 | 0.5 | µg/L | <0.5 | 10 µg/L | 87.5 | 80 | 120 |
| EG093A-T: Strontium | 7440-24-6 | 10 | µg/L | <10 | 50 µg/L | 95.8 | 83 | 117 |
| EG093A-T: Tin | 7440-31-5 | 5 | µg/L | <5 | 10 µg/L | 102 | 83 | 114 |
| EG093A-T: Vanadium | 7440-62-2 | 0.5 | µg/L | <0.5 | 10 µg/L | 111 | 84 | 120 |
| EG093A-T: Zinc | 7440-66-6 | 5 | µg/L | <5 | 20 µg/L | 94.6 | 81 | 124 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 743619)** | | | | | | | | |
| EG093B-T: Iron | 7439-89-6 | 5 | µg/L | <5 | 50 µg/L | 87.3 | 80 | 128 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 742891)** | | | | | | | | |
| EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | <0.01 | 1 mg/L | 105 | 86 | 112 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 742893)** | | | | | | | | |
| EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | <0.01 | 1 mg/L | 103 | 86 | 112 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 742895)** | | | | | | | | |
| EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | <0.01 | 1 mg/L | 104 | 86 | 112 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 742897)** | | | | | | | | |
| EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | <0.01 | 1 mg/L | 104 | 86 | 112 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 742900)** | | | | | | | | |
| EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | <0.01 | 1 mg/L | 102 | 86 | 112 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 742902)** | | | | | | | | |
| EK055G: Ammonia as N | 7664-41-7 | 0.01 | mg/L | <0.01 | 1 mg/L | 99.2 | 86 | 112 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 742645)** | | | | | | | | |
| EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 91.6 | 90 | 110 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 742646)** | | | | | | | | |
| EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 94.1 | 90 | 110 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 742648)** | | | | | | | | |
| EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 94.1 | 90 | 110 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 742650)** | | | | | | | | |
| EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 93.2 | 90 | 110 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 742656)** | | | | | | | | |
| EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 93.6 | 90 | 110 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 742658)** | | | | | | | | |
| EK057G: Nitrite as N | 14797-65-0 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 94.4 | 90 | 110 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 742892)** | | | | | | | | |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 742892) - continued** | | | | | | | | |
| EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | 0.5 mg/L | 101 | 89 | 115 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 742894)** | | | | | | | | |
| EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | 0.5 mg/L | 98.7 | 89 | 115 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 742896)** | | | | | | | | |
| EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | 0.5 mg/L | 99.8 | 89 | 115 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 742898)** | | | | | | | | |
| EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | 0.5 mg/L | 98.3 | 89 | 115 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 742901)** | | | | | | | | |
| EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | 0.5 mg/L | 98.6 | 89 | 115 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 742903)** | | | | | | | | |
| EK059G: Nitrite + Nitrate as N | ---- | 0.01 | mg/L | <0.01 | 0.5 mg/L | 98.2 | 89 | 115 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 743943)** | | | | | | | | |
| EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.1 | 10 mg/L | 78.9 | 70 | 111 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 744009)** | | | | | | | | |
| EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.1 | 10 mg/L | 85.6 | 70 | 111 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 744657)** | | | | | | | | |
| EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.1 | 10 mg/L | 81.9 | 70 | 111 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 744659)** | | | | | | | | |
| EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.1 | 10 mg/L | 82.3 | 70 | 111 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 744661)** | | | | | | | | |
| EK061G: Total Kjeldahl Nitrogen as N | ---- | 0.1 | mg/L | <0.1 | 10 mg/L | 80.9 | 70 | 111 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 743942)** | | | | | | | | |
| EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.01 | 4.42 mg/L | 89.7 | 77 | 109 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 744008)** | | | | | | | | |
| EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.01 | 4.42 mg/L | 95.5 | 77 | 109 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 744656)** | | | | | | | | |
| EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.01 | 4.42 mg/L | 82.8 | 77 | 109 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 744658)** | | | | | | | | |
| EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.01 | 4.42 mg/L | 81.7 | 77 | 109 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 744660)** | | | | | | | | |
| EK067G: Total Phosphorus as P | ---- | 0.01 | mg/L | <0.01 | 4.42 mg/L | 93.1 | 77 | 109 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 742644)** | | | | | | | | |
| EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 99.0 | 88 | 115 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 742647)** | | | | | | | | |
| EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 99.2 | 88 | 115 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 742649)** | | | | | | | | |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 742649) - continued** | | | | | | | | |
| EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 98.2 | 88 | 115 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 742651)** | | | | | | | | |
| EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 98.5 | 88 | 115 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 742657)** | | | | | | | | |
| EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 98.4 | 88 | 115 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 742659)** | | | | | | | | |
| EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.01 | mg/L | <0.01 | 0.5 mg/L | 95.8 | 88 | 115 |
| **EP008: Chlorophyll (QCLot: 742789)** | | | | | | | | |
| EP008: Chlorophyll a | ---- | 1 | mg/m³ | <1 | 20 mg/m³ | 110 | 85 | 123 |
| **EP008: Chlorophyll (QCLot: 742790)** | | | | | | | | |
| EP008: Chlorophyll a | ---- | 1 | mg/m³ | <1 | 20 mg/m³ | 100 | 85 | 123 |
| **EP008: Chlorophyll (QCLot: 742791)** | | | | | | | | |
| EP008: Chlorophyll a | ---- | 1 | mg/m³ | <1 | 20 mg/m³ | 113 | 85 | 123 |
| **EP008: Chlorophyll (QCLot: 742792)** | | | | | | | | |
| EP008: Chlorophyll a | ---- | 1 | mg/m³ | <1 | 20 mg/m³ | 110 | 85 | 123 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 742667)** | | | | | | | | |
| EP075(SIM): Naphthalene | 91-20-3 | 1 | µg/L | <1.0 | 10 µg/L | 82.4 | 47 | 101 |
| EP075(SIM): Acenaphthylene | 208-96-8 | 1 | µg/L | <1.0 | 10 µg/L | 83.2 | 46 | 109 |
| EP075(SIM): Acenaphthene | 83-32-9 | 1 | µg/L | <1.0 | 10 µg/L | 88.0 | 50 | 104 |
| EP075(SIM): Fluorene | 86-73-7 | 1 | µg/L | <1.0 | 10 µg/L | 85.9 | 50 | 114 |
| EP075(SIM): Phenanthrene | 85-01-8 | 1 | µg/L | <1.0 | 10 µg/L | 86.8 | 49 | 114 |
| EP075(SIM): Anthracene | 120-12-7 | 1 | µg/L | <1.0 | 10 µg/L | 78.2 | 48 | 113 |
| EP075(SIM): Fluoranthene | 206-44-0 | 1 | µg/L | <1.0 | 10 µg/L | 71.0 | 48 | 120 |
| EP075(SIM): Pyrene | 129-00-0 | 1 | µg/L | <1.0 | 10 µg/L | 69.9 | 48 | 119 |
| EP075(SIM): Benz(a)anthracene | 56-55-3 | 1 | µg/L | <1.0 | 10 µg/L | 71.9 | 48 | 125 |
| EP075(SIM): Chrysene | 218-01-9 | 1 | µg/L | <1.0 | 10 µg/L | 78.9 | 45 | 119 |
| EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2<br>205-82-3 | 1 | µg/L | <1.0 | 10 µg/L | 90.8 | 43 | 130 |
| EP075(SIM): Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | <1.0 | 10 µg/L | 80.2 | 46 | 130 |
| EP075(SIM): Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | <0.5 | 10 µg/L | 89.1 | 49 | 125 |
| EP075(SIM): Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | <1.0 | 10 µg/L | 88.8 | 40 | 132 |
| EP075(SIM): Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | <1.0 | 10 µg/L | 91.9 | 42 | 140 |
| EP075(SIM): Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | <1.0 | 10 µg/L | 89.1 | 39 | 136 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 742670)** | | | | | | | | |
| EP075(SIM): Naphthalene | 91-20-3 | 1 | µg/L | <1.0 | 10 µg/L | 80.9 | 47 | 101 |
| EP075(SIM): Acenaphthylene | 208-96-8 | 1 | µg/L | <1.0 | 10 µg/L | 84.8 | 46 | 109 |
| EP075(SIM): Acenaphthene | 83-32-9 | 1 | µg/L | <1.0 | 10 µg/L | 85.7 | 50 | 104 |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | |
|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 742670) - continued** | | | | | | | | |
| EP075(SIM): Fluorene | 86-73-7 | 1 | µg/L | <1.0 | 10 µg/L | 85.2 | 50 | 114 |
| EP075(SIM): Phenanthrene | 85-01-8 | 1 | µg/L | <1.0 | 10 µg/L | 84.0 | 49 | 114 |
| EP075(SIM): Anthracene | 120-12-7 | 1 | µg/L | <1.0 | 10 µg/L | 79.3 | 48 | 113 |
| EP075(SIM): Fluoranthene | 206-44-0 | 1 | µg/L | <1.0 | 10 µg/L | 71.2 | 48 | 120 |
| EP075(SIM): Pyrene | 129-00-0 | 1 | µg/L | <1.0 | 10 µg/L | 70.1 | 48 | 119 |
| EP075(SIM): Benz(a)anthracene | 56-55-3 | 1 | µg/L | <1.0 | 10 µg/L | 68.6 | 48 | 125 |
| EP075(SIM): Chrysene | 218-01-9 | 1 | µg/L | <1.0 | 10 µg/L | 74.3 | 45 | 119 |
| EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2<br>205-82-3 | 1 | µg/L | <1.0 | 10 µg/L | 77.0 | 43 | 130 |
| EP075(SIM): Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | <1.0 | 10 µg/L | 92.8 | 46 | 130 |
| EP075(SIM): Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | <0.5 | 10 µg/L | 87.8 | 49 | 125 |
| EP075(SIM): Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | <1.0 | 10 µg/L | 88.1 | 40 | 132 |
| EP075(SIM): Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | <1.0 | 10 µg/L | 90.9 | 42 | 140 |
| EP075(SIM): Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | <1.0 | 10 µg/L | 88.4 | 39 | 136 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 742676)** | | | | | | | | |
| EP075(SIM): Naphthalene | 91-20-3 | 1 | µg/L | <1.0 | 10 µg/L | 73.1 | 47 | 101 |
| EP075(SIM): Acenaphthylene | 208-96-8 | 1 | µg/L | <1.0 | 10 µg/L | 81.3 | 46 | 109 |
| EP075(SIM): Acenaphthene | 83-32-9 | 1 | µg/L | <1.0 | 10 µg/L | 73.2 | 50 | 104 |
| EP075(SIM): Fluorene | 86-73-7 | 1 | µg/L | <1.0 | 10 µg/L | 74.5 | 50 | 114 |
| EP075(SIM): Phenanthrene | 85-01-8 | 1 | µg/L | <1.0 | 10 µg/L | 68.9 | 49 | 114 |
| EP075(SIM): Anthracene | 120-12-7 | 1 | µg/L | <1.0 | 10 µg/L | 77.9 | 48 | 113 |
| EP075(SIM): Fluoranthene | 206-44-0 | 1 | µg/L | <1.0 | 10 µg/L | 79.9 | 48 | 120 |
| EP075(SIM): Pyrene | 129-00-0 | 1 | µg/L | <1.0 | 10 µg/L | 79.3 | 48 | 119 |
| EP075(SIM): Benz(a)anthracene | 56-55-3 | 1 | µg/L | <1.0 | 10 µg/L | 67.0 | 48 | 125 |
| EP075(SIM): Chrysene | 218-01-9 | 1 | µg/L | <1.0 | 10 µg/L | 73.3 | 45 | 119 |
| EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2<br>205-82-3 | 1 | µg/L | <1.0 | 10 µg/L | 66.8 | 43 | 130 |
| EP075(SIM): Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | <1.0 | 10 µg/L | 81.5 | 46 | 130 |
| EP075(SIM): Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | <0.5 | 10 µg/L | 71.7 | 49 | 125 |
| EP075(SIM): Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | <1.0 | 10 µg/L | 64.9 | 40 | 132 |
| EP075(SIM): Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | <1.0 | 10 µg/L | 64.4 | 42 | 140 |
| EP075(SIM): Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | <1.0 | 10 µg/L | 77.1 | 39 | 136 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 743058)** | | | | | | | | |
| EP075(SIM): Naphthalene | 91-20-3 | 1 | µg/L | <1.0 | 10 µg/L | 86.8 | 47 | 101 |
| EP075(SIM): Acenaphthylene | 208-96-8 | 1 | µg/L | <1.0 | 10 µg/L | 89.9 | 46 | 109 |
| EP075(SIM): Acenaphthene | 83-32-9 | 1 | µg/L | <1.0 | 10 µg/L | 91.7 | 50 | 104 |
| EP075(SIM): Fluorene | 86-73-7 | 1 | µg/L | <1.0 | 10 µg/L | 90.4 | 50 | 114 |
| EP075(SIM): Phenanthrene | 85-01-8 | 1 | µg/L | <1.0 | 10 µg/L | 89.5 | 49 | 114 |
| EP075(SIM): Anthracene | 120-12-7 | 1 | µg/L | <1.0 | 10 µg/L | 87.4 | 48 | 113 |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 743058) - continued** | | | | | | | | |
| EP075(SIM): Fluoranthene | 206-44-0 | 1 | µg/L | <1.0 | 10 µg/L | 88.4 | 48 | 120 |
| EP075(SIM): Pyrene | 129-00-0 | 1 | µg/L | <1.0 | 10 µg/L | 88.1 | 48 | 119 |
| EP075(SIM): Benz(a)anthracene | 56-55-3 | 1 | µg/L | <1.0 | 10 µg/L | 90.8 | 48 | 125 |
| EP075(SIM): Chrysene | 218-01-9 | 1 | µg/L | <1.0 | 10 µg/L | 88.6 | 45 | 119 |
| EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2<br>205-82-3 | 1 | µg/L | <1.0 | 10 µg/L | 86.1 | 43 | 130 |
| EP075(SIM): Benzo(k)fluoranthene | 207-08-9 | 1 | µg/L | <1.0 | 10 µg/L | 87.7 | 46 | 130 |
| EP075(SIM): Benzo(a)pyrene | 50-32-8 | 0.5 | µg/L | <0.5 | 10 µg/L | 93.2 | 49 | 125 |
| EP075(SIM): Indeno(1.2.3.cd)pyrene | 193-39-5 | 1 | µg/L | <1.0 | 10 µg/L | 88.8 | 40 | 132 |
| EP075(SIM): Dibenz(a.h)anthracene | 53-70-3 | 1 | µg/L | <1.0 | 10 µg/L | 91.1 | 42 | 140 |
| EP075(SIM): Benzo(g.h.i)perylene | 191-24-2 | 1 | µg/L | <1.0 | 10 µg/L | 88.6 | 39 | 136 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 742347)** | | | | | | | | |
| EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | 160 µg/L | 114 | 76 | 122 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 742351)** | | | | | | | | |
| EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | 160 µg/L | 94.3 | 76 | 122 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 742353)** | | | | | | | | |
| EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | 160 µg/L | 105 | 76 | 122 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 742355)** | | | | | | | | |
| EP080: C6 - C9 Fraction | ---- | 20 | µg/L | <20 | 160 µg/L | 106 | 76 | 122 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 742668)** | | | | | | | | |
| EP071: C10 - C14 Fraction | ---- | 50 | µg/L | <50 | 1211 µg/L | 62.2 | 38 | 114 |
| EP071: C15 - C28 Fraction | ---- | 100 | µg/L | <100 | 2103 µg/L | 67.2 | 50 | 132 |
| EP071: C29 - C36 Fraction | ---- | 50 | µg/L | <50 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 742669)** | | | | | | | | |
| EP071: C10 - C14 Fraction | ---- | 50 | µg/L | <50 | 1211 µg/L | 55.0 | 38 | 114 |
| EP071: C15 - C28 Fraction | ---- | 100 | µg/L | <100 | 2103 µg/L | 67.2 | 50 | 132 |
| EP071: C29 - C36 Fraction | ---- | 50 | µg/L | <50 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 742675)** | | | | | | | | |
| EP071: C10 - C14 Fraction | ---- | 50 | µg/L | <50 | 1211 µg/L | 70.0 | 38 | 114 |
| EP071: C15 - C28 Fraction | ---- | 100 | µg/L | <100 | 2103 µg/L | 81.1 | 50 | 132 |
| EP071: C29 - C36 Fraction | ---- | 50 | µg/L | <50 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 743057)** | | | | | | | | |
| EP071: C10 - C14 Fraction | ---- | 50 | µg/L | <50 | 1211 µg/L | 75.6 | 38 | 114 |
| EP071: C15 - C28 Fraction | ---- | 100 | µg/L | <100 | 2103 µg/L | 98.7 | 50 | 132 |
| EP071: C29 - C36 Fraction | ---- | 50 | µg/L | <50 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 742347)** | | | | | | | | |
| EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | 185 µg/L | 115 | 75 | 123 |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 742347) - continued** | | | | | | | | |
| EP080: C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | <20 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 742351)** | | | | | | | | |
| EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | 185 µg/L | 92.1 | 75 | 123 |
| EP080: C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | <20 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 742353)** | | | | | | | | |
| EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | 185 µg/L | 104 | 75 | 123 |
| EP080: C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | <20 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 742355)** | | | | | | | | |
| EP080: C6 - C10 Fraction | C6_C10 | 20 | µg/L | <20 | 185 µg/L | 106 | 75 | 123 |
| EP080: C6 - C10 Fraction minus BTEX (F1) | C6_C10-BTEX | 20 | µg/L | <20 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 742668)** | | | | | | | | |
| EP071: >C10 - C16 Fraction | ---- | 100 | µg/L | <100 | 1696 µg/L | 62.5 | 43 | 119 |
| EP071: >C16 - C34 Fraction | ---- | 100 | µg/L | <100 | 1496 µg/L | 68.3 | 49 | 134 |
| EP071: >C34 - C40 Fraction | ---- | 100 | µg/L | <100 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 742669)** | | | | | | | | |
| EP071: >C10 - C16 Fraction | ---- | 100 | µg/L | <100 | 1696 µg/L | 57.6 | 43 | 119 |
| EP071: >C16 - C34 Fraction | ---- | 100 | µg/L | <100 | 1496 µg/L | 67.4 | 49 | 134 |
| EP071: >C34 - C40 Fraction | ---- | 100 | µg/L | <100 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 742675)** | | | | | | | | |
| EP071: >C10 - C16 Fraction | ---- | 100 | µg/L | <100 | 1696 µg/L | 72.7 | 43 | 119 |
| EP071: >C16 - C34 Fraction | ---- | 100 | µg/L | <100 | 1496 µg/L | 83.4 | 49 | 134 |
| EP071: >C34 - C40 Fraction | ---- | 100 | µg/L | <100 | ---- | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 743057)** | | | | | | | | |
| EP071: >C10 - C16 Fraction | ---- | 100 | µg/L | <100 | 1696 µg/L | 81.0 | 43 | 119 |
| EP071: >C16 - C34 Fraction | ---- | 100 | µg/L | <100 | 1496 µg/L | 101 | 49 | 134 |
| EP071: >C34 - C40 Fraction | ---- | 100 | µg/L | <100 | ---- | ---- | ---- | ---- |
| **EP080: BTEXN (QCLot: 742347)** | | | | | | | | |
| EP080: Benzene | 71-43-2 | 1 | µg/L | <1 | 10 µg/L | 101 | 77 | 119 |
| EP080: Toluene | 108-88-3 | 2 | µg/L | <2 | 10 µg/L | 102 | 78 | 122 |
| EP080: Ethylbenzene | 100-41-4 | 2 | µg/L | <2 | 10 µg/L | 100 | 78 | 119 |
| EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 2 | µg/L | <2 | 20 µg/L | 104 | 77 | 121 |
| EP080: ortho-Xylene | 95-47-6 | 2 | µg/L | <2 | 10 µg/L | 102 | 76 | 121 |
| EP080: Total Xylenes | 1330-20-7 | 2 | µg/L | <2 | ---- | ---- | ---- | ---- |

Sub-Matrix: **WATER**

| Method: Compound | CAS Number | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Spike | Spike Recovery (%) | Recovery Limits (%) | |
| | | | | Result | Concentration | LCS | Low | High |
| **EP080: BTEXN (QCLot: 742347) - continued** | | | | | | | | |
| EP080: Sum of BTEX | ---- | 1 | µg/L | <1 | ---- | ---- | ---- | ---- |
| EP080: Naphthalene | 91-20-3 | 5 | µg/L | <5 | 10 µg/L | 100 | 75 | 120 |
| **EP080: BTEXN (QCLot: 742351)** | | | | | | | | |
| EP080: Benzene | 71-43-2 | 1 | µg/L | <1 | 10 µg/L | 99.6 | 77 | 119 |
| EP080: Toluene | 108-88-3 | 2 | µg/L | <2 | 10 µg/L | 93.4 | 78 | 122 |
| EP080: Ethylbenzene | 100-41-4 | 2 | µg/L | <2 | 10 µg/L | 92.9 | 78 | 119 |
| EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 2 | µg/L | <2 | 20 µg/L | 96.4 | 77 | 121 |
| EP080: ortho-Xylene | 95-47-6 | 2 | µg/L | <2 | 10 µg/L | 97.2 | 76 | 121 |
| EP080: Total Xylenes | 1330-20-7 | 2 | µg/L | <2 | ---- | ---- | ---- | ---- |
| EP080: Sum of BTEX | ---- | 1 | µg/L | <1 | ---- | ---- | ---- | ---- |
| EP080: Naphthalene | 91-20-3 | 5 | µg/L | <5 | 10 µg/L | 105 | 75 | 120 |
| **EP080: BTEXN (QCLot: 742353)** | | | | | | | | |
| EP080: Benzene | 71-43-2 | 1 | µg/L | <1 | 10 µg/L | 94.5 | 77 | 119 |
| EP080: Toluene | 108-88-3 | 2 | µg/L | <2 | 10 µg/L | 97.5 | 78 | 122 |
| EP080: Ethylbenzene | 100-41-4 | 2 | µg/L | <2 | 10 µg/L | 93.4 | 78 | 119 |
| EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 2 | µg/L | <2 | 20 µg/L | 97.5 | 77 | 121 |
| EP080: ortho-Xylene | 95-47-6 | 2 | µg/L | <2 | 10 µg/L | 95.4 | 76 | 121 |
| EP080: Total Xylenes | 1330-20-7 | 2 | µg/L | <2 | ---- | ---- | ---- | ---- |
| EP080: Sum of BTEX | ---- | 1 | µg/L | <1 | ---- | ---- | ---- | ---- |
| EP080: Naphthalene | 91-20-3 | 5 | µg/L | <5 | 10 µg/L | 97.3 | 75 | 120 |
| **EP080: BTEXN (QCLot: 742355)** | | | | | | | | |
| EP080: Benzene | 71-43-2 | 1 | µg/L | <1 | 10 µg/L | 92.0 | 77 | 119 |
| EP080: Toluene | 108-88-3 | 2 | µg/L | <2 | 10 µg/L | 97.0 | 78 | 122 |
| EP080: Ethylbenzene | 100-41-4 | 2 | µg/L | <2 | 10 µg/L | 95.9 | 78 | 119 |
| EP080: meta- & para-Xylene | 108-38-3<br>106-42-3 | 2 | µg/L | <2 | 20 µg/L | 97.0 | 77 | 121 |
| EP080: ortho-Xylene | 95-47-6 | 2 | µg/L | <2 | 10 µg/L | 98.0 | 76 | 121 |
| EP080: Total Xylenes | 1330-20-7 | 2 | µg/L | <2 | ---- | ---- | ---- | ---- |
| EP080: Sum of BTEX | ---- | 1 | µg/L | <1 | ---- | ---- | ---- | ---- |
| EP080: Naphthalene | 91-20-3 | 5 | µg/L | <5 | 10 µg/L | 101 | 75 | 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**

| Matrix Spike (MS) Report | | |
|---|---|---|
| Spike | SpikeRecovery(%) | Recovery Limits (%) |

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 |
| **EG035F: Dissolved Mercury by FIMS (QCLot: 743708)** | | | | | | | |
| EB1702002-004 | M3-M | EG035F: Mercury | 7439-97-6 | 0.01 mg/L | 75.4 | 70 | 130 |
| **EG035F: Dissolved Mercury by FIMS (QCLot: 743709)** | | | | | | | |
| EB1702002-024 | M11-SD | EG035F: Mercury | 7439-97-6 | 0.01 mg/L | 79.0 | 70 | 130 |
| **EG035F: Dissolved Mercury by FIMS (QCLot: 743719)** | | | | | | | |
| EB1702002-045 | M43-S | EG035F: Mercury | 7439-97-6 | 0.01 mg/L | 80.4 | 70 | 130 |
| **EG035F: Dissolved Mercury by FIMS (QCLot: 743720)** | | | | | | | |
| EB1702002-065 | M17-SD | EG035F: Mercury | 7439-97-6 | 0.01 mg/L | 85.5 | 70 | 130 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 743620)** | | | | | | | |
| EB1702002-004 | M3-M | EG035T: Mercury | 7439-97-6 | 0.01 mg/L | 73.8 | 70 | 130 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 743621)** | | | | | | | |
| EB1702002-024 | M11-SD | EG035T: Mercury | 7439-97-6 | 0.01 mg/L | 74.5 | 70 | 130 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 743624)** | | | | | | | |
| EB1702002-045 | M43-S | EG035T: Mercury | 7439-97-6 | 0.01 mg/L | 73.2 | 70 | 130 |
| **EG035T: Total Recoverable Mercury by FIMS (QCLot: 743625)** | | | | | | | |
| EB1702002-065 | M17-SD | EG035T: Mercury | 7439-97-6 | 0.01 mg/L | 72.4 | 70 | 130 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 743594)** | | | | | | | |
| EB1702002-002 | M6-B | EG093A-F: Arsenic | 7440-38-2 | 50 µg/L | 75.2 | 70 | 130 |
| | | EG093A-F: Barium | 7440-39-3 | 250 µg/L | 72.0 | 70 | 130 |
| | | EG093A-F: Cadmium | 7440-43-9 | 50 µg/L | 77.3 | 70 | 130 |
| | | EG093A-F: Chromium | 7440-47-3 | 50 µg/L | 74.8 | 70 | 130 |
| | | EG093A-F: Cobalt | 7440-48-4 | 50 µg/L | 75.5 | 70 | 130 |
| | | EG093A-F: Copper | 7440-50-8 | 100 µg/L | 72.8 | 70 | 130 |
| | | EG093A-F: Lead | 7439-92-1 | 50 µg/L | 77.8 | 70 | 130 |
| | | EG093A-F: Nickel | 7440-02-0 | 50 µg/L | 75.6 | 70 | 130 |
| | | EG093A-F: Vanadium | 7440-62-2 | 50 µg/L | 73.0 | 70 | 130 |
| | | EG093A-F: Zinc | 7440-66-6 | 100 µg/L | 71.6 | 70 | 130 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 743595)** | | | | | | | |
| EB1702002-022 | M8-B | EG093A-F: Arsenic | 7440-38-2 | 50 µg/L | 96.2 | 70 | 130 |
| | | EG093A-F: Barium | 7440-39-3 | 250 µg/L | 96.7 | 70 | 130 |
| | | EG093A-F: Cadmium | 7440-43-9 | 50 µg/L | 92.2 | 70 | 130 |
| | | EG093A-F: Chromium | 7440-47-3 | 50 µg/L | 96.2 | 70 | 130 |
| | | EG093A-F: Cobalt | 7440-48-4 | 50 µg/L | 95.9 | 70 | 130 |
| | | EG093A-F: Copper | 7440-50-8 | 100 µg/L | 95.6 | 70 | 130 |
| | | EG093A-F: Lead | 7439-92-1 | 50 µg/L | 95.8 | 70 | 130 |
| | | EG093A-F: Nickel | 7440-02-0 | 50 µg/L | 94.2 | 70 | 130 |
| | | EG093A-F: Vanadium | 7440-62-2 | 50 µg/L | 99.8 | 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 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 743595) - continued** | | | | | | | |
| EB1702002-022 | M8-B | EG093A-F: Zinc | 7440-66-6 | 100 µg/L | 89.1 | 70 | 130 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 743597)** | | | | | | | |
| EB1702002-043 | M37-M | EG093A-F: Arsenic | 7440-38-2 | 50 µg/L | 72.5 | 70 | 130 |
| | | EG093A-F: Barium | 7440-39-3 | 250 µg/L | 72.6 | 70 | 130 |
| | | EG093A-F: Cadmium | 7440-43-9 | 50 µg/L | 82.6 | 70 | 130 |
| | | EG093A-F: Chromium | 7440-47-3 | 50 µg/L | 84.2 | 70 | 130 |
| | | EG093A-F: Cobalt | 7440-48-4 | 50 µg/L | 88.1 | 70 | 130 |
| | | EG093A-F: Copper | 7440-50-8 | 100 µg/L | 75.5 | 70 | 130 |
| | | EG093A-F: Lead | 7439-92-1 | 50 µg/L | 86.4 | 70 | 130 |
| | | EG093A-F: Nickel | 7440-02-0 | 50 µg/L | 84.8 | 70 | 130 |
| | | EG093A-F: Vanadium | 7440-62-2 | 50 µg/L | 86.3 | 70 | 130 |
| | | EG093A-F: Zinc | 7440-66-6 | 100 µg/L | 73.0 | 70 | 130 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 743599)** | | | | | | | |
| EB1702002-063 | M16-B | EG093A-F: Arsenic | 7440-38-2 | 50 µg/L | 84.7 | 70 | 130 |
| | | EG093A-F: Barium | 7440-39-3 | 250 µg/L | 72.5 | 70 | 130 |
| | | EG093A-F: Cadmium | 7440-43-9 | 50 µg/L | 83.3 | 70 | 130 |
| | | EG093A-F: Chromium | 7440-47-3 | 50 µg/L | 83.7 | 70 | 130 |
| | | EG093A-F: Cobalt | 7440-48-4 | 50 µg/L | 83.0 | 70 | 130 |
| | | EG093A-F: Copper | 7440-50-8 | 100 µg/L | 75.3 | 70 | 130 |
| | | EG093A-F: Lead | 7439-92-1 | 50 µg/L | 81.4 | 70 | 130 |
| | | EG093A-F: Nickel | 7440-02-0 | 50 µg/L | 88.3 | 70 | 130 |
| | | EG093A-F: Vanadium | 7440-62-2 | 50 µg/L | 82.4 | 70 | 130 |
| | | EG093A-F: Zinc | 7440-66-6 | 100 µg/L | 81.6 | 70 | 130 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 743604)** | | | | | | | |
| EB1702002-002 | M6-B | EG093A-T: Arsenic | 7440-38-2 | 50 µg/L | 104 | 70 | 130 |
| | | EG093A-T: Barium | 7440-39-3 | 250 µg/L | 96.8 | 70 | 130 |
| | | EG093A-T: Cadmium | 7440-43-9 | 50 µg/L | 98.2 | 70 | 130 |
| | | EG093A-T: Chromium | 7440-47-3 | 50 µg/L | 98.0 | 70 | 130 |
| | | EG093A-T: Cobalt | 7440-48-4 | 50 µg/L | 96.6 | 70 | 130 |
| | | EG093A-T: Copper | 7440-50-8 | 100 µg/L | 100 | 70 | 130 |
| | | EG093A-T: Lead | 7439-92-1 | 50 µg/L | 94.4 | 70 | 130 |
| | | EG093A-T: Nickel | 7440-02-0 | 50 µg/L | 98.7 | 70 | 130 |
| | | EG093A-T: Vanadium | 7440-62-2 | 50 µg/L | 100 | 70 | 130 |
| | | EG093A-T: Zinc | 7440-66-6 | 100 µg/L | 93.5 | 70 | 130 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 743605)** | | | | | | | |
| EB1702002-022 | M8-B | EG093A-T: Arsenic | 7440-38-2 | 50 µg/L | 100 | 70 | 130 |
| | | EG093A-T: Barium | 7440-39-3 | 250 µg/L | 97.9 | 70 | 130 |
| | | EG093A-T: Cadmium | 7440-43-9 | 50 µg/L | 91.9 | 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 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 743605) - continued** | | | | | | | |
| EB1702002-022 | M8-B | EG093A-T: Chromium | 7440-47-3 | 50 µg/L | 97.0 | 70 | 130 |
| | | EG093A-T: Cobalt | 7440-48-4 | 50 µg/L | 97.6 | 70 | 130 |
| | | EG093A-T: Copper | 7440-50-8 | 100 µg/L | 96.8 | 70 | 130 |
| | | EG093A-T: Lead | 7439-92-1 | 50 µg/L | 100 | 70 | 130 |
| | | EG093A-T: Nickel | 7440-02-0 | 50 µg/L | 95.0 | 70 | 130 |
| | | EG093A-T: Vanadium | 7440-62-2 | 50 µg/L | 96.5 | 70 | 130 |
| | | EG093A-T: Zinc | 7440-66-6 | 100 µg/L | 97.2 | 70 | 130 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 743616)** | | | | | | | |
| EB1702002-043 | M37-M | EG093A-T: Arsenic | 7440-38-2 | 50 µg/L | 102 | 70 | 130 |
| | | EG093A-T: Barium | 7440-39-3 | 250 µg/L | 101 | 70 | 130 |
| | | EG093A-T: Cadmium | 7440-43-9 | 50 µg/L | 102 | 70 | 130 |
| | | EG093A-T: Chromium | 7440-47-3 | 50 µg/L | 103 | 70 | 130 |
| | | EG093A-T: Cobalt | 7440-48-4 | 50 µg/L | 104 | 70 | 130 |
| | | EG093A-T: Copper | 7440-50-8 | 100 µg/L | 103 | 70 | 130 |
| | | EG093A-T: Lead | 7439-92-1 | 50 µg/L | 101 | 70 | 130 |
| | | EG093A-T: Nickel | 7440-02-0 | 50 µg/L | 108 | 70 | 130 |
| | | EG093A-T: Vanadium | 7440-62-2 | 50 µg/L | 103 | 70 | 130 |
| | | EG093A-T: Zinc | 7440-66-6 | 100 µg/L | 104 | 70 | 130 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 743618)** | | | | | | | |
| EB1702002-063 | M16-B | EG093A-T: Arsenic | 7440-38-2 | 50 µg/L | 99.8 | 70 | 130 |
| | | EG093A-T: Barium | 7440-39-3 | 250 µg/L | 101 | 70 | 130 |
| | | EG093A-T: Cadmium | 7440-43-9 | 50 µg/L | 98.1 | 70 | 130 |
| | | EG093A-T: Chromium | 7440-47-3 | 50 µg/L | 96.2 | 70 | 130 |
| | | EG093A-T: Cobalt | 7440-48-4 | 50 µg/L | 95.3 | 70 | 130 |
| | | EG093A-T: Copper | 7440-50-8 | 100 µg/L | 96.6 | 70 | 130 |
| | | EG093A-T: Lead | 7439-92-1 | 50 µg/L | 101 | 70 | 130 |
| | | EG093A-T: Nickel | 7440-02-0 | 50 µg/L | 96.8 | 70 | 130 |
| | | EG093A-T: Vanadium | 7440-62-2 | 50 µg/L | 99.8 | 70 | 130 |
| | | EG093A-T: Zinc | 7440-66-6 | 100 µg/L | 97.0 | 70 | 130 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 742891)** | | | | | | | |
| EB1702002-002 | M6-B | EK055G: Ammonia as N | 7664-41-7 | 0.4 mg/L | 106 | 70 | 130 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 742893)** | | | | | | | |
| EB1702002-022 | M8-B | EK055G: Ammonia as N | 7664-41-7 | 0.4 mg/L | 108 | 70 | 130 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 742895)** | | | | | | | |
| EB1702002-027 | M2-S | EK055G: Ammonia as N | 7664-41-7 | 0.4 mg/L | 107 | 70 | 130 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 742897)** | | | | | | | |
| EB1702002-048 | M13-S | EK055G: Ammonia as N | 7664-41-7 | 0.4 mg/L | 106 | 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 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 742900)** | | | | | | | |
| EB1702002-051 | M23-S | EK055G: Ammonia as N | 7664-41-7 | 0.4 mg/L | 107 | 70 | 130 |
| **EK055G: Ammonia as N by Discrete Analyser (QCLot: 742902)** | | | | | | | |
| EB1702002-071 | M20-SD | EK055G: Ammonia as N | 7664-41-7 | 0.4 mg/L | 108 | 70 | 130 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 742645)** | | | | | | | |
| EB1702002-002 | M6-B | EK057G: Nitrite as N | 14797-65-0 | 0.4 mg/L | 118 | 70 | 130 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 742646)** | | | | | | | |
| EB1702002-022 | M8-B | EK057G: Nitrite as N | 14797-65-0 | 0.4 mg/L | 96.6 | 70 | 130 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 742648)** | | | | | | | |
| EB1702002-027 | M2-S | EK057G: Nitrite as N | 14797-65-0 | 0.4 mg/L | 95.6 | 70 | 130 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 742650)** | | | | | | | |
| EB1702002-048 | M13-S | EK057G: Nitrite as N | 14797-65-0 | 0.4 mg/L | 116 | 70 | 130 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 742656)** | | | | | | | |
| EB1702002-051 | M23-S | EK057G: Nitrite as N | 14797-65-0 | 0.4 mg/L | 116 | 70 | 130 |
| **EK057G: Nitrite as N by Discrete Analyser (QCLot: 742658)** | | | | | | | |
| EB1702002-071 | M20-SD | EK057G: Nitrite as N | 14797-65-0 | 0.4 mg/L | 108 | 70 | 130 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 742892)** | | | | | | | |
| EB1702002-002 | M6-B | EK059G: Nitrite + Nitrate as N | ---- | 0.4 mg/L | 92.4 | 70 | 130 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 742894)** | | | | | | | |
| EB1702002-022 | M8-B | EK059G: Nitrite + Nitrate as N | ---- | 0.4 mg/L | 106 | 70 | 130 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 742896)** | | | | | | | |
| EB1702002-027 | M2-S | EK059G: Nitrite + Nitrate as N | ---- | 0.4 mg/L | 96.4 | 70 | 130 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 742898)** | | | | | | | |
| EB1702002-048 | M13-S | EK059G: Nitrite + Nitrate as N | ---- | 0.4 mg/L | 89.8 | 70 | 130 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 742901)** | | | | | | | |
| EB1702002-051 | M23-S | EK059G: Nitrite + Nitrate as N | ---- | 0.4 mg/L | 93.2 | 70 | 130 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 742903)** | | | | | | | |
| EB1702002-071 | M20-SD | EK059G: Nitrite + Nitrate as N | ---- | 0.4 mg/L | 95.6 | 70 | 130 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 743943)** | | | | | | | |
| EB1702002-002 | M6-B | EK061G: Total Kjeldahl Nitrogen as N | ---- | 5 mg/L | 92.0 | 70 | 130 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 744009)** | | | | | | | |
| EB1702002-022 | M8-B | EK061G: Total Kjeldahl Nitrogen as N | ---- | 5 mg/L | 90.9 | 70 | 130 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 744657)** | | | | | | | |
| EB1701993-002 | Anonymous | EK061G: Total Kjeldahl Nitrogen as N | ---- | 5 mg/L | 82.9 | 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 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 744659)** | | | | | | | |
| EB1702002-049 | M13-M | EK061G: Total Kjeldahl Nitrogen as N | ---- | 5 mg/L | 70.9 | 70 | 130 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 744661)** | | | | | | | |
| EB1702002-069 | M19-B | EK061G: Total Kjeldahl Nitrogen as N | ---- | 5 mg/L | 97.5 | 70 | 130 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 743942)** | | | | | | | |
| EB1702002-002 | M6-B | EK067G: Total Phosphorus as P | ---- | 1 mg/L | 99.5 | 70 | 130 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 744008)** | | | | | | | |
| EB1702002-022 | M8-B | EK067G: Total Phosphorus as P | ---- | 1 mg/L | 94.8 | 70 | 130 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 744656)** | | | | | | | |
| EB1701993-002 | Anonymous | EK067G: Total Phosphorus as P | ---- | 1 mg/L | 91.4 | 70 | 130 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 744658)** | | | | | | | |
| EB1702002-049 | M13-M | EK067G: Total Phosphorus as P | ---- | 1 mg/L | 94.4 | 70 | 130 |
| **EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 744660)** | | | | | | | |
| EB1702002-069 | M19-B | EK067G: Total Phosphorus as P | ---- | 1 mg/L | 86.6 | 70 | 130 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 742644)** | | | | | | | |
| EB1702002-002 | M6-B | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.4 mg/L | 117 | 70 | 130 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 742647)** | | | | | | | |
| EB1702002-022 | M8-B | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.4 mg/L | 101 | 70 | 130 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 742649)** | | | | | | | |
| EB1702002-027 | M2-S | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.4 mg/L | 101 | 70 | 130 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 742651)** | | | | | | | |
| EB1702002-048 | M13-S | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.4 mg/L | 123 | 70 | 130 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 742657)** | | | | | | | |
| EB1702002-051 | M23-S | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.4 mg/L | 112 | 70 | 130 |
| **EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 742659)** | | | | | | | |
| EB1702002-071 | M20-SD | EK071G: Reactive Phosphorus as P | 14265-44-2 | 0.4 mg/L | 111 | 70 | 130 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 742347)** | | | | | | | |
| EB1702002-002 | M6-B | EP080: C6 - C9 Fraction | ---- | 40 µg/L | 105 | 70 | 130 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 742351)** | | | | | | | |
| EB1702002-022 | M8-B | EP080: C6 - C9 Fraction | ---- | 40 µg/L | 79.3 | 70 | 130 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 742353)** | | | | | | | |
| EB1702002-042 | M37-S | EP080: C6 - C9 Fraction | ---- | 40 µg/L | 104 | 70 | 130 |
| **EP080/071: Total Petroleum Hydrocarbons (QCLot: 742355)** | | | | | | | |
| EB1702002-062 | M16-M | EP080: C6 - C9 Fraction | ---- | 40 µg/L | 129 | 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* |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 742347)** | | | | | | | |
| EB1702002-002 | M6-B | EP080: C6 - C10 Fraction | C6_C10 | 40 µg/L | 102 | 70 | 130 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 742351)** | | | | | | | |
| EB1702002-022 | M8-B | EP080: C6 - C10 Fraction | C6_C10 | 40 µg/L | 83.8 | 70 | 130 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 742353)** | | | | | | | |
| EB1702002-042 | M37-S | EP080: C6 - C10 Fraction | C6_C10 | 40 µg/L | 105 | 70 | 130 |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 742355)** | | | | | | | |
| EB1702002-062 | M16-M | EP080: C6 - C10 Fraction | C6_C10 | 40 µg/L | 123 | 70 | 130 |
| **EP080: BTEXN (QCLot: 742347)** | | | | | | | |
| EB1702002-002 | M6-B | EP080: Benzene | 71-43-2 | 10 µg/L | 92.1 | 70 | 130 |
| | | EP080: Toluene | 108-88-3 | 10 µg/L | 95.9 | 70 | 130 |
| **EP080: BTEXN (QCLot: 742351)** | | | | | | | |
| EB1702002-022 | M8-B | EP080: Benzene | 71-43-2 | 10 µg/L | 100 | 70 | 130 |
| | | EP080: Toluene | 108-88-3 | 10 µg/L | 89.3 | 70 | 130 |
| **EP080: BTEXN (QCLot: 742353)** | | | | | | | |
| EB1702002-042 | M37-S | EP080: Benzene | 71-43-2 | 10 µg/L | 93.9 | 70 | 130 |
| | | EP080: Toluene | 108-88-3 | 10 µg/L | 95.6 | 70 | 130 |
| **EP080: BTEXN (QCLot: 742355)** | | | | | | | |
| EB1702002-062 | M16-M | EP080: Benzene | 71-43-2 | 10 µg/L | 91.4 | 70 | 130 |
| | | EP080: Toluene | 108-88-3 | 10 µg/L | 96.1 | 70 | 130 |

ALS Environmental

# QA/QC Compliance Assessment to assist with Quality Review

| | | | |
|---|---|---|---|
| **Work Order** | : **EB1702002** | Page | : 1 of 51 |
| **Amendment** | : **2** | | |
| Client | : **BMT WBM GROUP LTD** | Laboratory | : Environmental Division Brisbane |
| Contact | : MR JEREMY VISSER | Telephone | : +61-7-3243 7222 |
| Project | : B21414 Elk | Date Samples Received | : 02-Feb-2017 |
| Site | : ---- | Issue Date | : 02-Mar-2017 |
| Sampler | : BRAD HILES, DANIEL MORAN | No. of samples received | : 77 |
| Order number | : ---- | No. of samples analysed | : 77 |

**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 |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | ---- | ---- | ---- | 06-Feb-2017 | 22-Jan-2017 | **15** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B, M7-S, M7-B | ---- | ---- | ---- | 06-Feb-2017 | 23-Jan-2017 | **14** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M25-S, M25-M, M25-B | ---- | ---- | ---- | 06-Feb-2017 | 30-Jan-2017 | **7** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | ---- | ---- | ---- | 06-Feb-2017 | 31-Jan-2017 | **6** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | ---- | ---- | ---- | 06-Feb-2017 | 01-Feb-2017 | **5** |

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 |
| **EA025: Total Suspended Solids dried at 104 ± 2°C - Analysis Holding Time Compliance** | | | | | | | |
| **Clear Plastic Bottle - Natural** | | | | | | | |
| M22-S, | M22-B, | ---- | ---- | ---- | 06-Feb-2017 | 02-Feb-2017 | **4** |
| M24-S, | M24-M, | | | | | | |
| M24-B, | M15-S, | | | | | | |
| M15-M, | M15-B, | | | | | | |
| M16-S, | M16-M, | | | | | | |
| M16-B, | M17-S, | | | | | | |
| M17-SD, | M17-B, | | | | | | |
| M19-S, | M19-SD, | | | | | | |
| M19-B, | M20-S, | | | | | | |
| M20-SD, | M20-B, | | | | | | |
| M21-S, | M21-SD, | | | | | | |
| M21-B | | | | | | | |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | |
| **Clear Plastic Bottle - Natural** | | | | | | | |
| M6-S, | M6-B, | ---- | ---- | ---- | 03-Feb-2017 | 17-Jan-2017 | **17** |
| M3-S, | M3-M, | | | | | | |
| M3-B, | M9-S, | | | | | | |
| M9-M, | M9-B, | | | | | | |
| M10-S, | M10-B, | | | | | | |
| M4-S, | M4-M, | | | | | | |
| M4-B, | M12-S, | | | | | | |
| M12-M, | M12-B | | | | | | |
| **Clear Plastic Bottle - Natural** | | | | | | | |
| M1-S, | M1-B, | ---- | ---- | ---- | 03-Feb-2017 | 18-Jan-2017 | **16** |
| M5-S, | M5-B, | | | | | | |
| M8-S, | M8-B, | | | | | | |
| M11-S, | M11-SD, | | | | | | |
| M11-M, | M11-B, | | | | | | |
| M2-S, | M2-SD, | | | | | | |
| M2-B, | M46-S, | | | | | | |
| M46-M, | M46-B, | | | | | | |
| M45-S, | M45-B, | | | | | | |
| M7-S, | M7-B | | | | | | |
| **Clear Plastic Bottle - Natural** | | | | | | | |
| M25-S, | M25-M, | ---- | ---- | ---- | 03-Feb-2017 | 25-Jan-2017 | **9** |
| M25-B | | | | | | | |
| **Clear Plastic Bottle - Natural** | | | | | | | |
| M31-S, | M31-M, | ---- | ---- | ---- | 03-Feb-2017 | 26-Jan-2017 | **8** |
| M31-B, | M37-S, | | | | | | |
| M37-M, | M37-B | | | | | | |

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 |
| **EK057G: Nitrite as N by Discrete Analyser - Analysis Holding Time Compliance** | | | | | | |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | ---- | ---- | ---- | 03-Feb-2017 | 27-Jan-2017 | **7** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | ---- | ---- | ---- | 03-Feb-2017 | 28-Jan-2017 | **6** |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | ---- | ---- | ---- | 03-Feb-2017 | 17-Jan-2017 | **17** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B, M7-S, M7-B | ---- | ---- | ---- | 03-Feb-2017 | 18-Jan-2017 | **16** |

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 |
| **EK071G: Reactive Phosphorus as P by discrete analyser - Analysis Holding Time Compliance** | | | | | | |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M25-S, M25-M, M25-B | ---- | ---- | ---- | 03-Feb-2017 | 25-Jan-2017 | **9** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | ---- | ---- | ---- | 03-Feb-2017 | 26-Jan-2017 | **8** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | ---- | ---- | ---- | 03-Feb-2017 | 27-Jan-2017 | **7** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | ---- | ---- | ---- | 03-Feb-2017 | 28-Jan-2017 | **6** |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | 03-Feb-2017 | 22-Jan-2017 | **12** | ---- | ---- | ---- |

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 - Analysis Holding Time Compliance** | | | | | | |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-B, M7-S, M7-B | 03-Feb-2017 | 23-Jan-2017 | **11** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M25-S, M25-M, M25-B | 03-Feb-2017 | 30-Jan-2017 | **4** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | 03-Feb-2017 | 31-Jan-2017 | **3** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | 03-Feb-2017 | 01-Feb-2017 | **2** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | 03-Feb-2017 | 02-Feb-2017 | **1** | ---- | ---- | ---- |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M45-S | 03-Feb-2017 | 23-Jan-2017 | **11** | ---- | ---- | ---- |
| **EP080/071: Total Petroleum Hydrocarbons** | | | | | | |

Matrix: **WATER**

| Method / Container / Client Sample ID(s) | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|
| | Date extracted | Due for extraction | Days overdue | Date analysed | Due for analysis | Days overdue |
| **EP080/071: Total Petroleum Hydrocarbons - Analysis Holding Time Compliance** | | | | | | |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | 03-Feb-2017 | 22-Jan-2017 | **12** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-B, M7-S, M7-B | 03-Feb-2017 | 23-Jan-2017 | **11** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M25-S, M25-M, M25-B | 03-Feb-2017 | 30-Jan-2017 | **4** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | 03-Feb-2017 | 31-Jan-2017 | **3** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | 03-Feb-2017 | 01-Feb-2017 | **2** | ---- | ---- | ---- |

Matrix: **WATER**

| Method / Container / Client Sample ID(s) | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|
| | Date extracted | Due for extraction | Days overdue | Date analysed | Due for analysis | Days overdue |
| **EP080/071: Total Petroleum Hydrocarbons - Analysis Holding Time Compliance** | | | | | | |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | 03-Feb-2017 | 02-Feb-2017 | **1** | ---- | ---- | ---- |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | 03-Feb-2017 | 29-Jan-2017 | **5** | 03-Feb-2017 | 29-Jan-2017 | **5** |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B, Trip Blank, M7-S, M7-B | 03-Feb-2017 | 30-Jan-2017 | **4** | 03-Feb-2017 | 30-Jan-2017 | **4** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M45-S | 03-Feb-2017 | 23-Jan-2017 | **11** | ---- | ---- | ---- |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | |

Matrix: **WATER**

| Method / Container / Client Sample ID(s) | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|
| | Date extracted | Due for extraction | Days overdue | Date analysed | Due for analysis | Days overdue |
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Analysis Holding Time** | | | | | | |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | 03-Feb-2017 | 22-Jan-2017 | **12** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-B, M7-S, M7-B | 03-Feb-2017 | 23-Jan-2017 | **11** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M25-S, M25-M, M25-B | 03-Feb-2017 | 30-Jan-2017 | **4** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | 03-Feb-2017 | 31-Jan-2017 | **3** | ---- | ---- | ---- |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | 03-Feb-2017 | 01-Feb-2017 | **2** | ---- | ---- | ---- |

Matrix: **WATER**

| Method / Container / Client Sample ID(s) | Extraction / Preparation: Date extracted | Extraction / Preparation: Due for extraction | Extraction / Preparation: Days overdue | Analysis: Date analysed | Analysis: Due for analysis | Analysis: Days overdue |
|---|---|---|---|---|---|---|
| **EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Analysis Holding Time** | | | | | | |
| **Amber Glass Bottle - Unpreserved** | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | 03-Feb-2017 | 02-Feb-2017 | **1** | ---- | ---- | ---- |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | 03-Feb-2017 | 29-Jan-2017 | **5** | 03-Feb-2017 | 29-Jan-2017 | **5** |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B, Trip Blank, M7-S, M7-B | 03-Feb-2017 | 30-Jan-2017 | **4** | 03-Feb-2017 | 30-Jan-2017 | **4** |
| **Clear Plastic Bottle - Natural** | | | | | | |
| M45-S | 03-Feb-2017 | 23-Jan-2017 | **11** | ---- | ---- | ---- |
| **EP080: BTEXN** | | | | | | |

Matrix: **WATER**

| Method / Container / Client Sample ID(s) | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|
| | Date extracted | Due for extraction | Days overdue | Date analysed | Due for analysis | Days overdue |
| **EP080: BTEXN - Analysis Holding Time Compliance** | | | | | | |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | 03-Feb-2017 | 29-Jan-2017 | **5** | 03-Feb-2017 | 29-Jan-2017 | **5** |
| **Amber VOC Vial - Sulfuric Acid** | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B, Trip Blank, M7-S, M7-B | 03-Feb-2017 | 30-Jan-2017 | **4** | 03-Feb-2017 | 30-Jan-2017 | **4** |

## *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 | 76 | 0.00 | 10.00 | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | 0 | 79 | 0.00 | 10.00 | NEPM 2013 B3 & ALS QC Standard |
| Matrix Spikes (MS) | | | | | |
| PAH/Phenols (GC/MS - SIM) | 0 | 76 | 0.00 | 5.00 | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | 0 | 79 | 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 |

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 |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | |
| **Clear Plastic Bottle - Natural (EA025)** | | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | **15-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 22-Jan-2017 | × |
| **Clear Plastic Bottle - Natural (EA025)** | | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B, M7-S, M7-B | **16-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 23-Jan-2017 | × |
| **Clear Plastic Bottle - Natural (EA025)** | | | | | | | |
| M25-S, M25-M, M25-B | **23-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 30-Jan-2017 | × |
| **Clear Plastic Bottle - Natural (EA025)** | | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | **24-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 31-Jan-2017 | × |
| **Clear Plastic Bottle - Natural (EA025)** | | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | **25-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 01-Feb-2017 | × |
| **Clear Plastic Bottle - Natural (EA025)** | | | | | | | |

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 |
| **EA025: Total Suspended Solids dried at 104 ± 2°C - Continued** | | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | **26-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 02-Feb-2017 | ✘ |

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 |
| **EG035F: Dissolved Mercury by FIMS** | | | | | | | |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | **15-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 12-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B | **16-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 13-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| M7-S, M7-B | **16-Jan-2017** | **----** | ---- | ---- | **07-Feb-2017** | 13-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| M25-S, M25-M, M25-B | **23-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 20-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| M31-S, M31-M, M31-B | **24-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 21-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| M37-S, M37-M, M37-B | **24-Jan-2017** | **----** | ---- | ---- | **07-Feb-2017** | 21-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | **25-Jan-2017** | **----** | ---- | ---- | **07-Feb-2017** | 22-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG035F)** | | | | | | | |

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 |
| **EG035F: Dissolved Mercury by FIMS - Continued** | | | | | | | | |
| M22-S, | M22-B, | **26-Jan-2017** | **----** | ---- | ---- | **07-Feb-2017** | 23-Feb-2017 | ✓ |
| M24-S, | M24-M, | | | | | | | |
| M24-B, | M15-S, | | | | | | | |
| M15-M, | M15-B, | | | | | | | |
| M16-S, | M16-M, | | | | | | | |
| M16-B, | M17-S, | | | | | | | |
| M17-SD, | M17-B, | | | | | | | |
| M19-S, | M19-SD, | | | | | | | |
| M19-B, | M20-S, | | | | | | | |
| M20-SD, | M20-B, | | | | | | | |
| M21-S, | M21-SD, | | | | | | | |
| M21-B | | | | | | | | |

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 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)** | | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | **15-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 12-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)** | | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B, M7-S, M7-B | **16-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 13-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)** | | | | | | | |
| M25-S, M25-M, M25-B | **23-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 20-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)** | | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | **24-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 21-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)** | | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | **25-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 22-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T)** | | | | | | | |

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 |
| **EG035T: Total Recoverable Mercury by FIMS - Continued** | | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | **26-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 23-Feb-2017 | ✓ |

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 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS** | | | | | | | |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG093B-F)** | | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | **15-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 14-Jul-2017 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG093B-F)** | | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B, M7-S, M7-B | **16-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 15-Jul-2017 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG093B-F)** | | | | | | | |
| M25-S, M25-M, M25-B | **23-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 22-Jul-2017 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG093B-F)** | | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | **24-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 23-Jul-2017 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG093B-F)** | | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | **25-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 24-Jul-2017 | ✓ |
| **Clear Plastic Bottle - Filtered; Lab-acidified (EG093B-F)** | | | | | | | |

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 |
| **EG093F: Dissolved Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | **26-Jan-2017** | **----** | ---- | ---- | **06-Feb-2017** | 25-Jul-2017 | ✓ |

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 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS** | | | | | | | |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG093B-T)** | | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | **15-Jan-2017** | **06-Feb-2017** | 14-Jul-2017 | ✓ | **06-Feb-2017** | 14-Jul-2017 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG093B-T)** | | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B, M7-S, M7-B | **16-Jan-2017** | **06-Feb-2017** | 15-Jul-2017 | ✓ | **06-Feb-2017** | 15-Jul-2017 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG093B-T)** | | | | | | | |
| M25-S, M25-M, M25-B | **23-Jan-2017** | **06-Feb-2017** | 22-Jul-2017 | ✓ | **06-Feb-2017** | 22-Jul-2017 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG093B-T)** | | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | **24-Jan-2017** | **06-Feb-2017** | 23-Jul-2017 | ✓ | **06-Feb-2017** | 23-Jul-2017 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG093B-T)** | | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | **25-Jan-2017** | **06-Feb-2017** | 24-Jul-2017 | ✓ | **06-Feb-2017** | 24-Jul-2017 | ✓ |
| **Clear Plastic Bottle - Unfiltered; Lab-acidified (EG093B-T)** | | | | | | | |

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 |
| **EG093T: Total Metals in Saline Water by ORC-ICPMS - Continued** | | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | **26-Jan-2017** | **06-Feb-2017** | 25-Jul-2017 | ✓ | **06-Feb-2017** | 25-Jul-2017 | ✓ |

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 |
| **EK055G: Ammonia as N by Discrete Analyser** | | | | | | | |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | **15-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 12-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B, M7-S, M7-B | **16-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 13-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |
| M25-S, M25-M, M25-B | **23-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 20-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | **24-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 21-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | **25-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 22-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK055G)** | | | | | | | |

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 |
| **EK055G: Ammonia as N by Discrete Analyser - Continued** | | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | **26-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 23-Feb-2017 | ✓ |

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 |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | |
| **Clear Plastic Bottle - Natural (EK057G)** | | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | **15-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 17-Jan-2017 | × |
| **Clear Plastic Bottle - Natural (EK057G)** | | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B, M7-S, M7-B | **16-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 18-Jan-2017 | × |
| **Clear Plastic Bottle - Natural (EK057G)** | | | | | | | |
| M25-S, M25-M, M25-B | **23-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 25-Jan-2017 | × |
| **Clear Plastic Bottle - Natural (EK057G)** | | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | **24-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 26-Jan-2017 | × |
| **Clear Plastic Bottle - Natural (EK057G)** | | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | **25-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 27-Jan-2017 | × |
| **Clear Plastic Bottle - Natural (EK057G)** | | | | | | | |

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 |
| **EK057G: Nitrite as N by Discrete Analyser - Continued** | | | | | | | | |
| M22-S, | M22-B, | **26-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 28-Jan-2017 | ✘ |
| M24-S, | M24-M, | | | | | | | |
| M24-B, | M15-S, | | | | | | | |
| M15-M, | M15-B, | | | | | | | |
| M16-S, | M16-M, | | | | | | | |
| M16-B, | M17-S, | | | | | | | |
| M17-SD, | M17-B, | | | | | | | |
| M19-S, | M19-SD, | | | | | | | |
| M19-B, | M20-S, | | | | | | | |
| M20-SD, | M20-B, | | | | | | | |
| M21-S, | M21-SD, | | | | | | | |
| M21-B | | | | | | | | |

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 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)** | | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | **15-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 12-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)** | | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B, M7-S, M7-B | **16-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 13-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)** | | | | | | | |
| M25-S, M25-M, M25-B | **23-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 20-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)** | | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | **24-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 21-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)** | | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | **25-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 22-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK059G)** | | | | | | | |

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 |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser - Continued** | | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | **26-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 23-Feb-2017 | ✓ |

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 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser** | | | | | | | |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | **15-Jan-2017** | **06-Feb-2017** | 12-Feb-2017 | ✓ | **06-Feb-2017** | 12-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B | **16-Jan-2017** | **06-Feb-2017** | 13-Feb-2017 | ✓ | **06-Feb-2017** | 13-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| M7-S, M7-B | **16-Jan-2017** | **08-Feb-2017** | 13-Feb-2017 | ✓ | **08-Feb-2017** | 13-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| M25-S, M25-M, M25-B | **23-Jan-2017** | **06-Feb-2017** | 20-Feb-2017 | ✓ | **06-Feb-2017** | 20-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| M31-S, M31-M, M31-B | **24-Jan-2017** | **06-Feb-2017** | 21-Feb-2017 | ✓ | **06-Feb-2017** | 21-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| M37-S, M37-M, M37-B | **24-Jan-2017** | **08-Feb-2017** | 21-Feb-2017 | ✓ | **08-Feb-2017** | 21-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | **25-Jan-2017** | **08-Feb-2017** | 22-Feb-2017 | ✓ | **08-Feb-2017** | 22-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK061G)** | | | | | | | |

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 |
| **EK061G: Total Kjeldahl Nitrogen By Discrete Analyser - Continued** | | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | **26-Jan-2017** | **08-Feb-2017** | 23-Feb-2017 | ✓ | **08-Feb-2017** | 23-Feb-2017 | ✓ |

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 |
| **EK067G: Total Phosphorus as P by Discrete Analyser** | | | | | | | |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | **15-Jan-2017** | **06-Feb-2017** | 12-Feb-2017 | ✓ | **06-Feb-2017** | 12-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B | **16-Jan-2017** | **06-Feb-2017** | 13-Feb-2017 | ✓ | **06-Feb-2017** | 13-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| M7-S, M7-B | **16-Jan-2017** | **08-Feb-2017** | 13-Feb-2017 | ✓ | **08-Feb-2017** | 13-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| M25-S, M25-M, M25-B | **23-Jan-2017** | **06-Feb-2017** | 20-Feb-2017 | ✓ | **06-Feb-2017** | 20-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| M31-S, M31-M, M31-B | **24-Jan-2017** | **06-Feb-2017** | 21-Feb-2017 | ✓ | **06-Feb-2017** | 21-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| M37-S, M37-M, M37-B | **24-Jan-2017** | **08-Feb-2017** | 21-Feb-2017 | ✓ | **08-Feb-2017** | 21-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | **25-Jan-2017** | **08-Feb-2017** | 22-Feb-2017 | ✓ | **08-Feb-2017** | 22-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Sulfuric Acid (EK067G)** | | | | | | | |

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 |
| **EK067G: Total Phosphorus as P by Discrete Analyser - Continued** | | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | **26-Jan-2017** | **08-Feb-2017** | 23-Feb-2017 | ✓ | **08-Feb-2017** | 23-Feb-2017 | ✓ |

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 |
| **EK071G: Reactive Phosphorus as P by discrete analyser** | | | | | | | |
| **Clear Plastic Bottle - Natural (EK071G)** | | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | **15-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 17-Jan-2017 | × |
| **Clear Plastic Bottle - Natural (EK071G)** | | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B, M7-S, M7-B | **16-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 18-Jan-2017 | × |
| **Clear Plastic Bottle - Natural (EK071G)** | | | | | | | |
| M25-S, M25-M, M25-B | **23-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 25-Jan-2017 | × |
| **Clear Plastic Bottle - Natural (EK071G)** | | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | **24-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 26-Jan-2017 | × |
| **Clear Plastic Bottle - Natural (EK071G)** | | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | **25-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 27-Jan-2017 | × |
| **Clear Plastic Bottle - Natural (EK071G)** | | | | | | | |

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 |
| **EK071G: Reactive Phosphorus as P by discrete analyser - Continued** | | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | **26-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 28-Jan-2017 | ✘ |

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 |
| **EP008: Chlorophyll a & Pheophytin a** | | | | | | | |
| **Glass Fibre Filter Paper (Chlorophyll) (EP008)** | | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | **15-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 05-Feb-2017 | ✓ |
| **Glass Fibre Filter Paper (Chlorophyll) (EP008)** | | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B, M7-S, M7-B | **16-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 06-Feb-2017 | ✓ |
| **Glass Fibre Filter Paper (Chlorophyll) (EP008)** | | | | | | | |
| M25-S, M25-M, M25-B | **23-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 13-Feb-2017 | ✓ |
| **Glass Fibre Filter Paper (Chlorophyll) (EP008)** | | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | **24-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 14-Feb-2017 | ✓ |
| **Glass Fibre Filter Paper (Chlorophyll) (EP008)** | | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | **25-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 15-Feb-2017 | ✓ |
| **Glass Fibre Filter Paper (Chlorophyll) (EP008)** | | | | | | | |

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 |
| **EP008: Chlorophyll a & Pheophytin a - Continued** | | | | | | | | |
| M22-S, | M22-B, | **26-Jan-2017** | **----** | ---- | ---- | **03-Feb-2017** | 16-Feb-2017 | ✓ |
| M24-S, | M24-M, | | | | | | | |
| M24-B, | M15-S, | | | | | | | |
| M15-M, | M15-B, | | | | | | | |
| M16-S, | M16-M, | | | | | | | |
| M16-B, | M17-S, | | | | | | | |
| M17-SD, | M17-B, | | | | | | | |
| M19-S, | M19-SD, | | | | | | | |
| M19-B, | M20-S, | | | | | | | |
| M20-SD, | M20-B, | | | | | | | |
| M21-S, | M21-SD, | | | | | | | |
| M21-B | | | | | | | | |

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 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons** | | | | | | | | |
| **Amber Glass Bottle - Unpreserved (EP075(SIM))** | | | | | | | | |
| M6-S, | M6-B, | **15-Jan-2017** | **03-Feb-2017** | 22-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| M3-S, | M3-M, | | | | | | | |
| M3-B, | M9-S, | | | | | | | |
| M9-M, | M9-B, | | | | | | | |
| M10-S, | M10-B, | | | | | | | |
| M4-S, | M4-M, | | | | | | | |
| M4-B, | M12-S, | | | | | | | |
| M12-M, | M12-B | | | | | | | |
| **Amber Glass Bottle - Unpreserved (EP075(SIM))** | | | | | | | | |
| M1-S, | M1-B, | **16-Jan-2017** | **03-Feb-2017** | 23-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| M5-S, | M5-B, | | | | | | | |
| M8-S, | M8-B, | | | | | | | |
| M11-S, | M11-SD, | | | | | | | |
| M11-M, | M11-B, | | | | | | | |
| M2-S, | M2-SD, | | | | | | | |
| M2-B, | M46-S, | | | | | | | |
| M46-M, | M46-B, | | | | | | | |
| M45-B, | M7-S, | | | | | | | |
| M7-B | | | | | | | | |
| **Amber Glass Bottle - Unpreserved (EP075(SIM))** | | | | | | | | |
| M25-S, | M25-M, | **23-Jan-2017** | **03-Feb-2017** | 30-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| M25-B | | | | | | | | |
| **Amber Glass Bottle - Unpreserved (EP075(SIM))** | | | | | | | | |
| M31-S, | M31-M, | **24-Jan-2017** | **03-Feb-2017** | 31-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| M31-B, | M37-S, | | | | | | | |
| M37-M, | M37-B | | | | | | | |
| **Amber Glass Bottle - Unpreserved (EP075(SIM))** | | | | | | | | |
| M43-S, | M43-M, | **25-Jan-2017** | **03-Feb-2017** | 01-Feb-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| M43-B, | M13-S, | | | | | | | |
| M13-M, | M13-B, | | | | | | | |
| M23-S, | M23-B | | | | | | | |
| **Amber Glass Bottle - Unpreserved (EP075(SIM))** | | | | | | | | |

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 |
| **EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued** | | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | **26-Jan-2017** | **03-Feb-2017** | 02-Feb-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| **Clear Plastic Bottle - Natural (EP075(SIM))** | | | | | | | |
| M45-S | **16-Jan-2017** | **03-Feb-2017** | 23-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |

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)** | | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | **15-Jan-2017** | **03-Feb-2017** | 22-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-B, M7-S, M7-B | **16-Jan-2017** | **03-Feb-2017** | 23-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| M25-S, M25-M, M25-B | **23-Jan-2017** | **03-Feb-2017** | 30-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | **24-Jan-2017** | **03-Feb-2017** | 31-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | **25-Jan-2017** | **03-Feb-2017** | 01-Feb-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |

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 - Continued** | | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | **26-Jan-2017** | **03-Feb-2017** | 02-Feb-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | **15-Jan-2017** | **03-Feb-2017** | 29-Jan-2017 | × | **03-Feb-2017** | 29-Jan-2017 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B, Trip Blank, M7-S, M7-B | **16-Jan-2017** | **03-Feb-2017** | 30-Jan-2017 | × | **03-Feb-2017** | 30-Jan-2017 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| M25-S, M25-M, M25-B | **23-Jan-2017** | **03-Feb-2017** | 06-Feb-2017 | ✓ | **03-Feb-2017** | 06-Feb-2017 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | **24-Jan-2017** | **03-Feb-2017** | 07-Feb-2017 | ✓ | **03-Feb-2017** | 07-Feb-2017 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |

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 - Continued** | | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | **25-Jan-2017** | **03-Feb-2017** | 08-Feb-2017 | ✓ | **03-Feb-2017** | 08-Feb-2017 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | **26-Jan-2017** | **03-Feb-2017** | 09-Feb-2017 | ✓ | **03-Feb-2017** | 09-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Natural (EP071)** | | | | | | | |
| M45-S | **16-Jan-2017** | **03-Feb-2017** | 23-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |

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 Recoverable Hydrocarbons - NEPM 2013 Fractions** | | | | | | | |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | **15-Jan-2017** | **03-Feb-2017** | 22-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-B, M7-S, M7-B | **16-Jan-2017** | **03-Feb-2017** | 23-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| M25-S, M25-M, M25-B | **23-Jan-2017** | **03-Feb-2017** | 30-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | **24-Jan-2017** | **03-Feb-2017** | 31-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | **25-Jan-2017** | **03-Feb-2017** | 01-Feb-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| **Amber Glass Bottle - Unpreserved (EP071)** | | | | | | | |

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 Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued** | | | | | | | | |
| M22-S, | M22-B, | **26-Jan-2017** | **03-Feb-2017** | 02-Feb-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |
| M24-S, | M24-M, | | | | | | | |
| M24-B, | M15-S, | | | | | | | |
| M15-M, | M15-B, | | | | | | | |
| M16-S, | M16-M, | | | | | | | |
| M16-B, | M17-S, | | | | | | | |
| M17-SD, | M17-B, | | | | | | | |
| M19-S, | M19-SD, | | | | | | | |
| M19-B, | M20-S, | | | | | | | |
| M20-SD, | M20-B, | | | | | | | |
| M21-S, | M21-SD, | | | | | | | |
| M21-B | | | | | | | | |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | | |
| M6-S, | M6-B, | **15-Jan-2017** | **03-Feb-2017** | 29-Jan-2017 | × | **03-Feb-2017** | 29-Jan-2017 | × |
| M3-S, | M3-M, | | | | | | | |
| M3-B, | M9-S, | | | | | | | |
| M9-M, | M9-B, | | | | | | | |
| M10-S, | M10-B, | | | | | | | |
| M4-S, | M4-M, | | | | | | | |
| M4-B, | M12-S, | | | | | | | |
| M12-M, | M12-B | | | | | | | |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | | |
| M1-S, | M1-B, | **16-Jan-2017** | **03-Feb-2017** | 30-Jan-2017 | × | **03-Feb-2017** | 30-Jan-2017 | × |
| M5-S, | M5-B, | | | | | | | |
| M8-S, | M8-B, | | | | | | | |
| M11-S, | M11-SD, | | | | | | | |
| M11-M, | M11-B, | | | | | | | |
| M2-S, | M2-SD, | | | | | | | |
| M2-B, | M46-S, | | | | | | | |
| M46-M, | M46-B, | | | | | | | |
| M45-S, | M45-B, | | | | | | | |
| Trip Blank, | M7-S, | | | | | | | |
| M7-B | | | | | | | | |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | | |
| M25-S, | M25-M, | **23-Jan-2017** | **03-Feb-2017** | 06-Feb-2017 | ✓ | **03-Feb-2017** | 06-Feb-2017 | ✓ |
| M25-B | | | | | | | | |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | | |
| M31-S, | M31-M, | **24-Jan-2017** | **03-Feb-2017** | 07-Feb-2017 | ✓ | **03-Feb-2017** | 07-Feb-2017 | ✓ |
| M31-B, | M37-S, | | | | | | | |
| M37-M, | M37-B | | | | | | | |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | | |

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 Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued** | | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | **25-Jan-2017** | **03-Feb-2017** | 08-Feb-2017 | ✓ | **03-Feb-2017** | 08-Feb-2017 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | **26-Jan-2017** | **03-Feb-2017** | 09-Feb-2017 | ✓ | **03-Feb-2017** | 09-Feb-2017 | ✓ |
| **Clear Plastic Bottle - Natural (EP071)** | | | | | | | |
| M45-S | **16-Jan-2017** | **03-Feb-2017** | 23-Jan-2017 | × | **06-Feb-2017** | 15-Mar-2017 | ✓ |

Matrix: **WATER**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EP080: BTEXN** | | | | | | | |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| M6-S, M6-B, M3-S, M3-M, M3-B, M9-S, M9-M, M9-B, M10-S, M10-B, M4-S, M4-M, M4-B, M12-S, M12-M, M12-B | **15-Jan-2017** | **03-Feb-2017** | 29-Jan-2017 | × | **03-Feb-2017** | 29-Jan-2017 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| M1-S, M1-B, M5-S, M5-B, M8-S, M8-B, M11-S, M11-SD, M11-M, M11-B, M2-S, M2-SD, M2-B, M46-S, M46-M, M46-B, M45-S, M45-B, Trip Blank, M7-S, M7-B | **16-Jan-2017** | **03-Feb-2017** | 30-Jan-2017 | × | **03-Feb-2017** | 30-Jan-2017 | × |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| M25-S, M25-M, M25-B | **23-Jan-2017** | **03-Feb-2017** | 06-Feb-2017 | ✓ | **03-Feb-2017** | 06-Feb-2017 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| M31-S, M31-M, M31-B, M37-S, M37-M, M37-B | **24-Jan-2017** | **03-Feb-2017** | 07-Feb-2017 | ✓ | **03-Feb-2017** | 07-Feb-2017 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |
| M43-S, M43-M, M43-B, M13-S, M13-M, M13-B, M23-S, M23-B | **25-Jan-2017** | **03-Feb-2017** | 08-Feb-2017 | ✓ | **03-Feb-2017** | 08-Feb-2017 | ✓ |
| **Amber VOC Vial - Sulfuric Acid (EP080)** | | | | | | | |

Matrix: **WATER**

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

| Method / Container / Client Sample ID(s) | Sample Date | Extraction / Preparation | | | Analysis | | |
|---|---|---|---|---|---|---|---|
| | | Date extracted | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| **EP080: BTEXN - Continued** | | | | | | | |
| M22-S, M22-B, M24-S, M24-M, M24-B, M15-S, M15-M, M15-B, M16-S, M16-M, M16-B, M17-S, M17-SD, M17-B, M19-S, M19-SD, M19-B, M20-S, M20-SD, M20-B, M21-S, M21-SD, M21-B | **26-Jan-2017** | **03-Feb-2017** | 09-Feb-2017 | ✓ | **03-Feb-2017** | 09-Feb-2017 | ✓ |

# 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)** | | | | | | | |
| Ammonia as N by Discrete analyser | EK055G | 9 | 76 | **11.84** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Mercury by FIMS | EG035F | 8 | 76 | **10.53** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Saline Water -Suite A by ORC-ICPMS | EG093A-F | 8 | 77 | **10.39** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Saline Water -Suite B by ORC-ICPMS | EG093B-F | 8 | 76 | **10.53** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Nitrite and Nitrate as N (NOx) by Discrete Analyser | EK059G | 9 | 76 | **11.84** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Nitrite as N by Discrete Analyser | EK057G | 9 | 76 | **11.84** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (GC/MS - SIM) | EP075(SIM) | 0 | 76 | **0.00** | **10.00** | × | NEPM 2013 B3 & ALS QC Standard |
| Reactive Phosphorus as P-By Discrete Analyser | EK071G | 9 | 76 | **11.84** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Suspended Solids | EA025 | 9 | 76 | **11.84** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Kjeldahl Nitrogen as N By Discrete Analyser | EK061G | 9 | 90 | **10.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 8 | 76 | **10.53** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Saline Water Suite A by ORC-ICPMS | EG093A-T | 8 | 78 | **10.26** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Saline Water -Suite B by ORC-ICPMS | EG093B-T | 8 | 76 | **10.53** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Phosphorus as P By Discrete Analyser | EK067G | 9 | 90 | **10.00** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 0 | 79 | **0.00** | **10.00** | × | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 8 | 77 | **10.39** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| **Laboratory Control Samples (LCS)** | | | | | | | |
| Ammonia as N by Discrete analyser | EK055G | 6 | 76 | **7.89** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Chlorophyll a and Pheophytin a | EP008 | 4 | 76 | **5.26** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Mercury by FIMS | EG035F | 4 | 76 | **5.26** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Saline Water -Suite A by ORC-ICPMS | EG093A-F | 4 | 77 | **5.19** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Saline Water -Suite B by ORC-ICPMS | EG093B-F | 4 | 76 | **5.26** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Nitrite and Nitrate as N (NOx) by Discrete Analyser | EK059G | 6 | 76 | **7.89** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Nitrite as N by Discrete Analyser | EK057G | 6 | 76 | **7.89** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (GC/MS - SIM) | EP075(SIM) | 4 | 76 | **5.26** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Reactive Phosphorus as P-By Discrete Analyser | EK071G | 6 | 76 | **7.89** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Suspended Solids | EA025 | 10 | 76 | **13.16** | **10.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Kjeldahl Nitrogen as N By Discrete Analyser | EK061G | 5 | 90 | **5.56** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 4 | 76 | **5.26** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Saline Water Suite A by ORC-ICPMS | EG093A-T | 4 | 78 | **5.13** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Saline Water -Suite B by ORC-ICPMS | EG093B-T | 4 | 76 | **5.26** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Phosphorus as P By Discrete Analyser | EK067G | 5 | 90 | **5.56** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 4 | 79 | **5.06** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 4 | 77 | **5.19** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| **Method Blanks (MB)** | | | | | | | |
| Ammonia as N by Discrete analyser | EK055G | 6 | 76 | **7.89** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |

Matrix: **WATER**

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

| Quality Control Sample Type | | Count | | Rate (%) | | | Quality Control Specification |
|---|---|---|---|---|---|---|---|
| *Analytical Methods* | *Method* | *QC* | *Regular* | ***Actual*** | ***Expected*** | *Evaluation* | |
| **Method Blanks (MB) - Continued** | | | | | | | |
| Chlorophyll a and Pheophytin a | EP008 | 4 | 76 | **5.26** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Mercury by FIMS | EG035F | 4 | 76 | **5.26** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Saline Water -Suite A by ORC-ICPMS | EG093A-F | 4 | 77 | **5.19** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Saline Water -Suite B by ORC-ICPMS | EG093B-F | 4 | 76 | **5.26** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Nitrite and Nitrate as N (NOx) by Discrete Analyser | EK059G | 6 | 76 | **7.89** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Nitrite as N by Discrete Analyser | EK057G | 6 | 76 | **7.89** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (GC/MS - SIM) | EP075(SIM) | 4 | 76 | **5.26** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Reactive Phosphorus as P-By Discrete Analyser | EK071G | 6 | 76 | **7.89** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Suspended Solids | EA025 | 5 | 76 | **6.58** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Kjeldahl Nitrogen as N By Discrete Analyser | EK061G | 5 | 90 | **5.56** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 4 | 76 | **5.26** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Saline Water Suite A by ORC-ICPMS | EG093A-T | 4 | 78 | **5.13** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Saline Water -Suite B by ORC-ICPMS | EG093B-T | 4 | 76 | **5.26** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Phosphorus as P By Discrete Analyser | EK067G | 5 | 90 | **5.56** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 4 | 79 | **5.06** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 4 | 77 | **5.19** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| **Matrix Spikes (MS)** | | | | | | | |
| Ammonia as N by Discrete analyser | EK055G | 6 | 76 | **7.89** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Mercury by FIMS | EG035F | 4 | 76 | **5.26** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals in Saline Water -Suite A by ORC-ICPMS | EG093A-F | 4 | 77 | **5.19** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Nitrite and Nitrate as N (NOx) by Discrete Analyser | EK059G | 6 | 76 | **7.89** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Nitrite as N by Discrete Analyser | EK057G | 6 | 76 | **7.89** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (GC/MS - SIM) | EP075(SIM) | 0 | 76 | **0.00** | **5.00** | × | NEPM 2013 B3 & ALS QC Standard |
| Reactive Phosphorus as P-By Discrete Analyser | EK071G | 6 | 76 | **7.89** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Kjeldahl Nitrogen as N By Discrete Analyser | EK061G | 5 | 90 | **5.56** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS | EG035T | 4 | 76 | **5.26** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Metals in Saline Water Suite A by ORC-ICPMS | EG093A-T | 4 | 78 | **5.13** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| Total Phosphorus as P By Discrete Analyser | EK067G | 5 | 90 | **5.56** | **5.00** | ✓ | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction | EP071 | 0 | 79 | **0.00** | **5.00** | × | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX | EP080 | 4 | 77 | **5.19** | **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 |
|---|---|---|---|
| Suspended Solids | EA025 | WATER | In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of `non-filterable` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM (2013) Schedule B(3) |
| 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) |
| Total Mercury by FIMS | EG035T | WATER | In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3) |
| Dissolved Metals in Saline Water -Suite A by ORC-ICPMS | EG093A-F | WATER | In house: Referenced to APHA 3125; USEPA SW846 - 6020 Samples are 0.45µm filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) |
| Total Metals in Saline Water Suite A by ORC-ICPMS | EG093A-T | WATER | In house: Referenced to APHA 3125; USEPA SW846 - 6020. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) |
| Dissolved Metals in Saline Water -Suite B by ORC-ICPMS | EG093B-F | WATER | In house: Referenced to APHA 3125; USEPA SW846 - 6020 Samples are 0.45µm filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) |
| Total Metals in Saline Water -Suite B by ORC-ICPMS | EG093B-T | WATER | In house: Referenced to APHA 3125; USEPA SW846 - 6020. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM (2013) Schedule B(3) |
| Ammonia as N by Discrete analyser | EK055G | WATER | In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3) |
| Nitrite as N by Discrete Analyser | EK057G | WATER | In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3) |

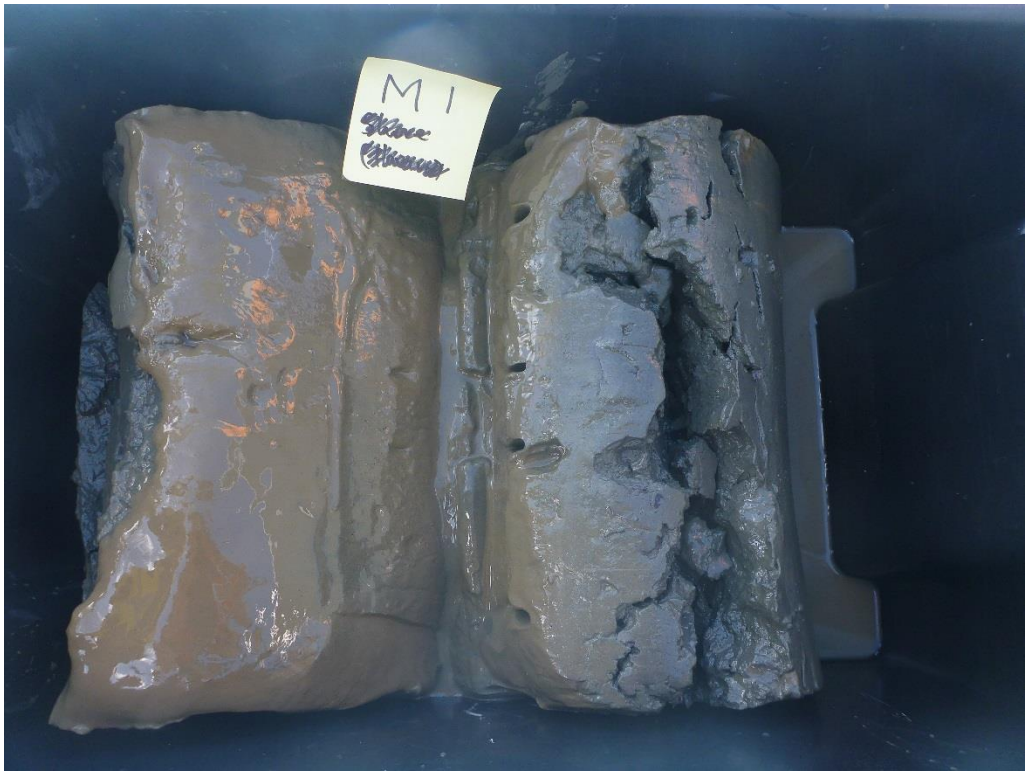
| Analytical Methods | Method | Matrix | Method Descriptions |
|---|---|---|---|
| Nitrate as N by Discrete Analyser | EK058G | WATER | In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (2013) Schedule B(3) |
| Nitrite and Nitrate as N (NOx) by Discrete Analyser | EK059G | WATER | In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3) |
| Total Kjeldahl Nitrogen as N By Discrete Analyser | EK061G | WATER | In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM (2013) Schedule B(3) |
| Total Nitrogen as N (TKN + Nox) By Discrete Analyser | EK062G | WATER | In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM (2013) Schedule B(3) |
| Total Phosphorus as P By Discrete Analyser | EK067G | WATER | In house: Referenced to APHA 4500-P H, Jirka et al (1976), Zhang et al (2006). This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM (2013) Schedule B(3) |
| Reactive Phosphorus as P-By Discrete Analyser | EK071G | WATER | In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3) |
| Chlorophyll a and Pheophytin a | EP008 | WATER | In house: Referenced to APHA 10200 H. The pigments are extracted into aqueous acetone. The optical density of the extract before and after acidification at both 664 nm and 665 nm is determined spectrometrically. |
| 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 |
|---|---|---|---|
| TKN/TP Digestion | EK061/EK067 | WATER | In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM (2013) Schedule B(3) |
| Digestion for Total Recoverable Metals - ORC | EN25-ORC | WATER | In house: Referenced to USEPA SW846-3005. This is an Ultrapure Nitric acid digestion procedure used to prepare surface and ground water samples for analysis by ORC- ICPMS. This method is compliant with NEPM (2013) Schedule B(3) |

| Preparation Methods | Method | Matrix | Method Descriptions |
|---|---|---|---|
| Separatory Funnel Extraction of Liquids | ORG14 | WATER | In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container. |
| Volatiles Water Preparation | ORG16-W | WATER | A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging. |

# Appendix E Photographs of Sediment Samples

**M1**



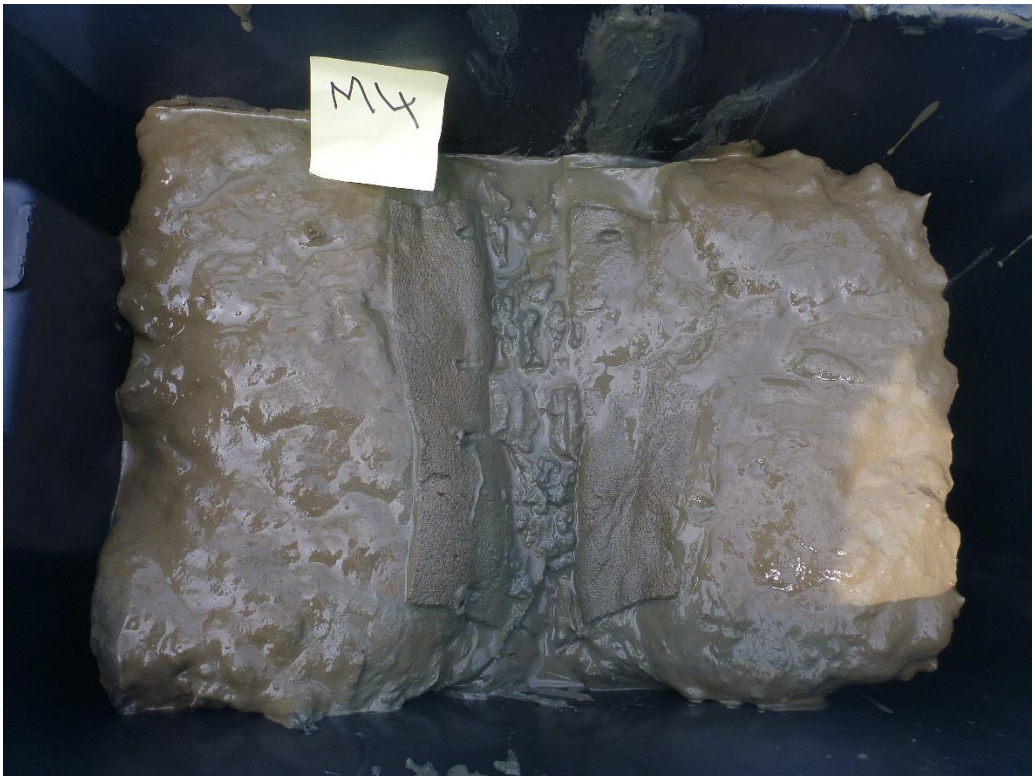

**M2**



**M3**




**M4**



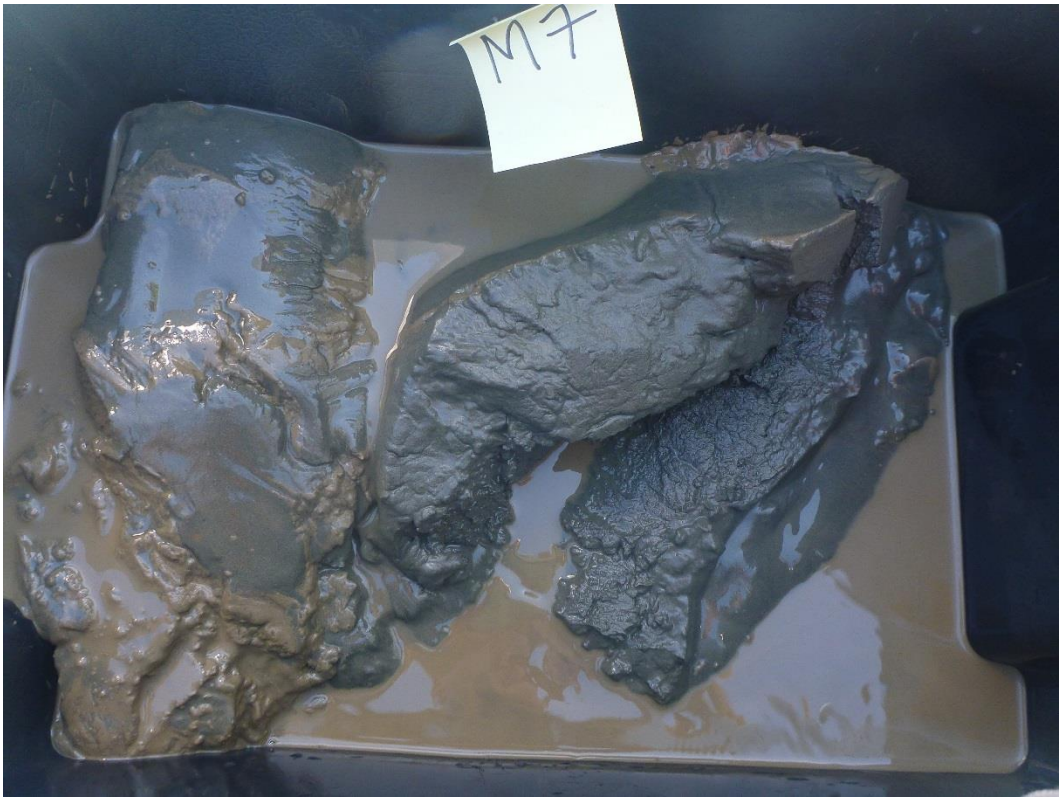
**M5**




**M6**



**M7**



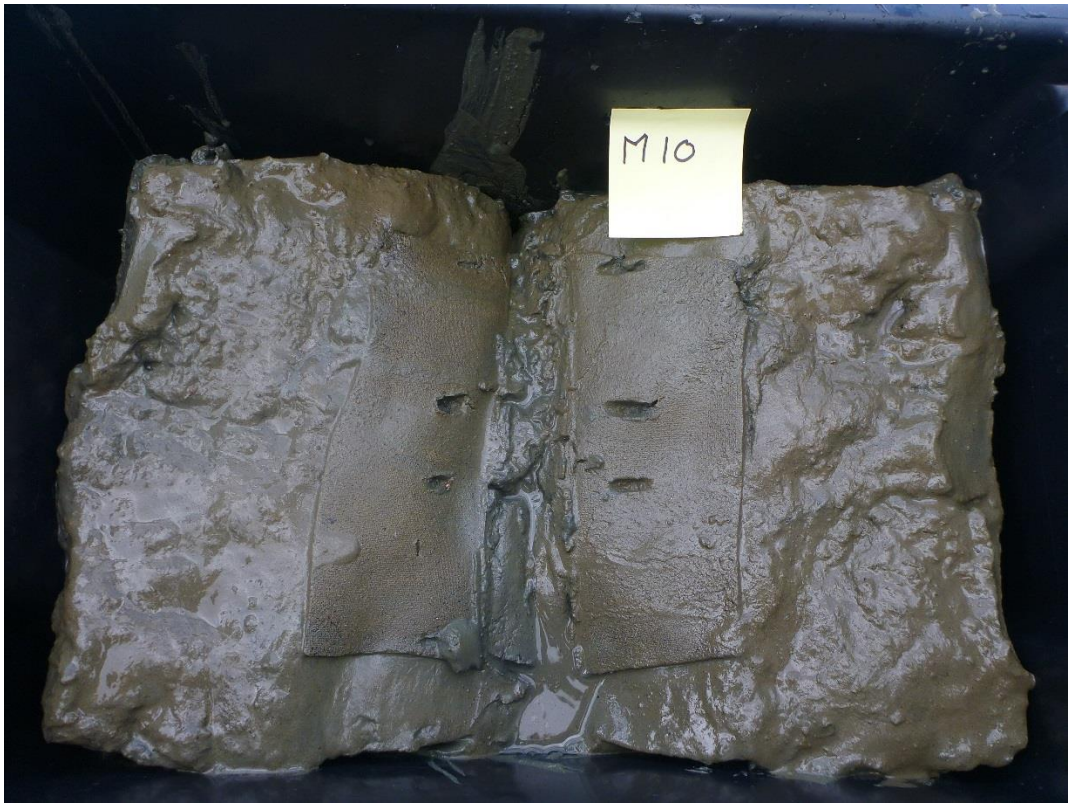

**M8**



**M9**




**M10**



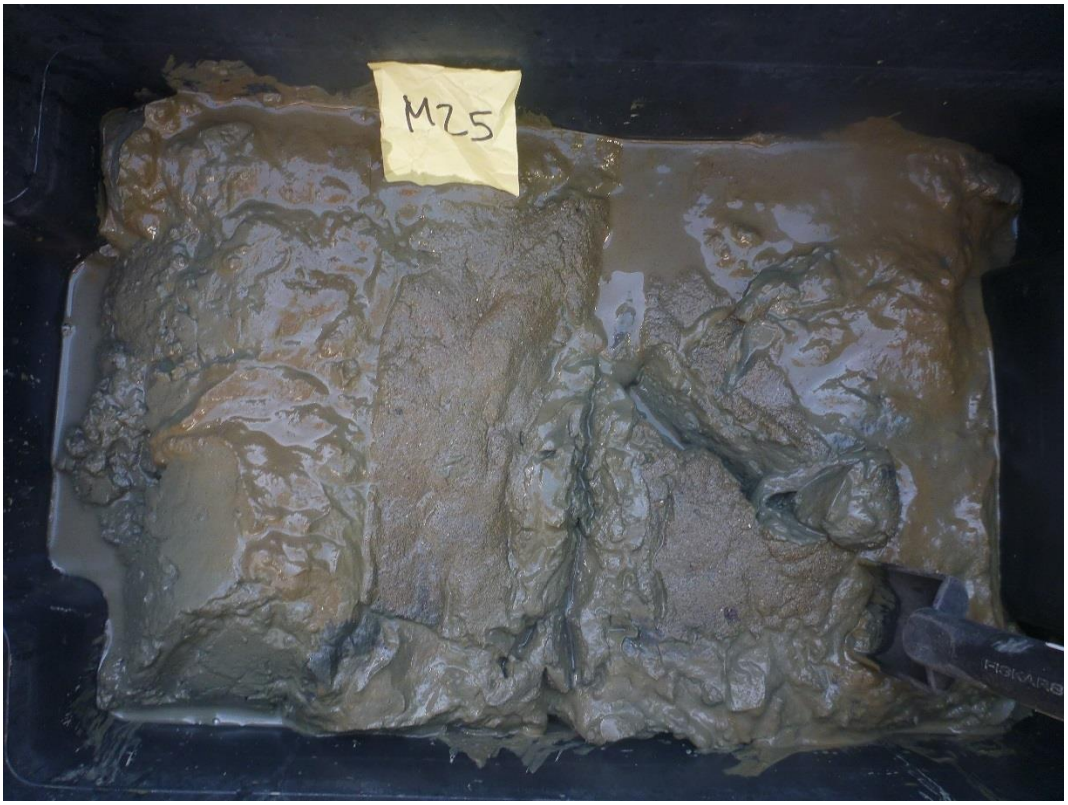
**M11**



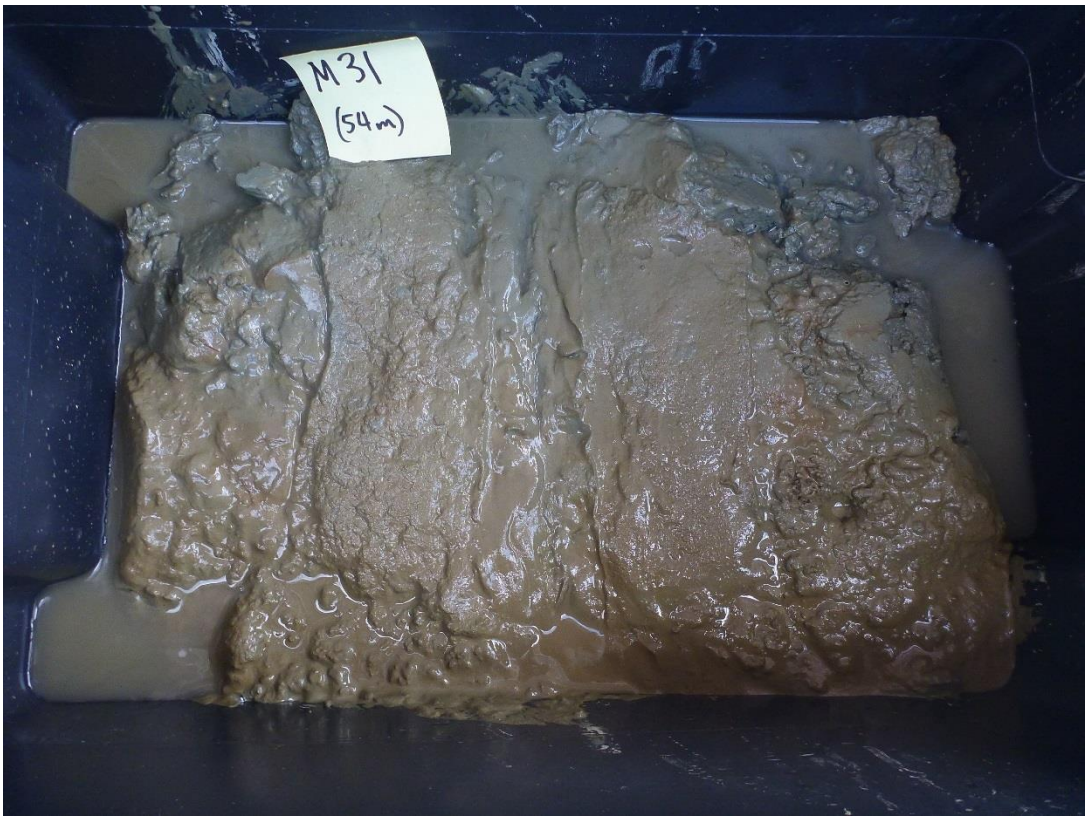

**M12**



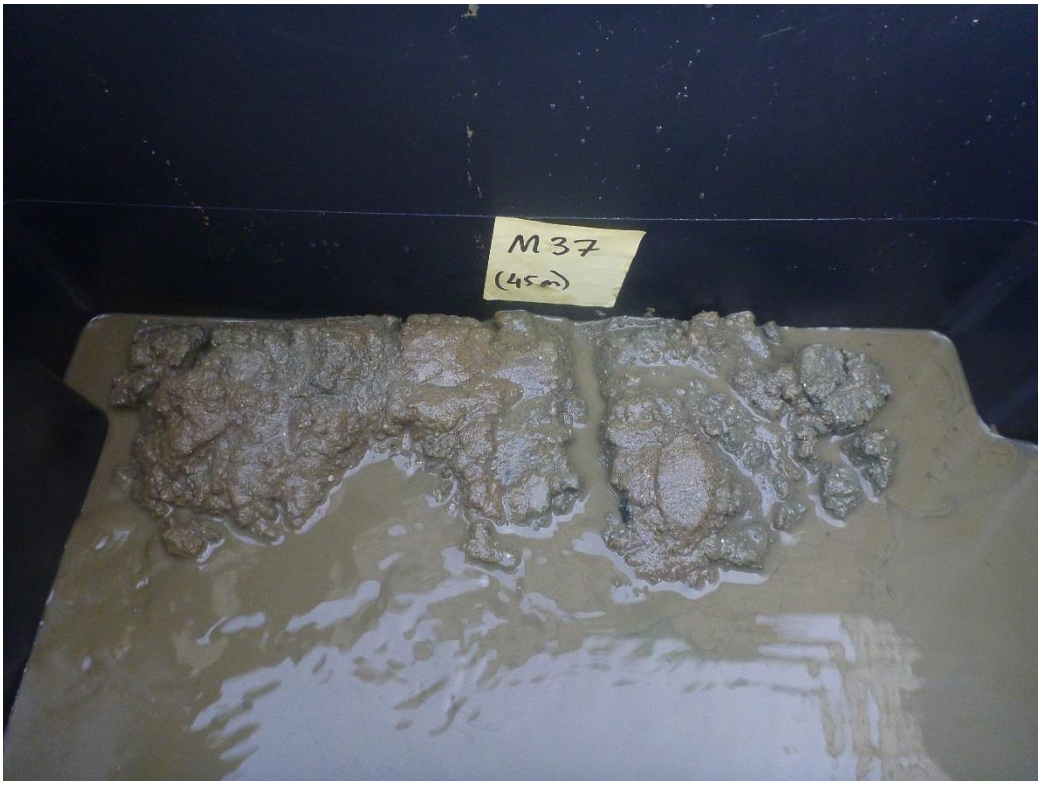
**M25**



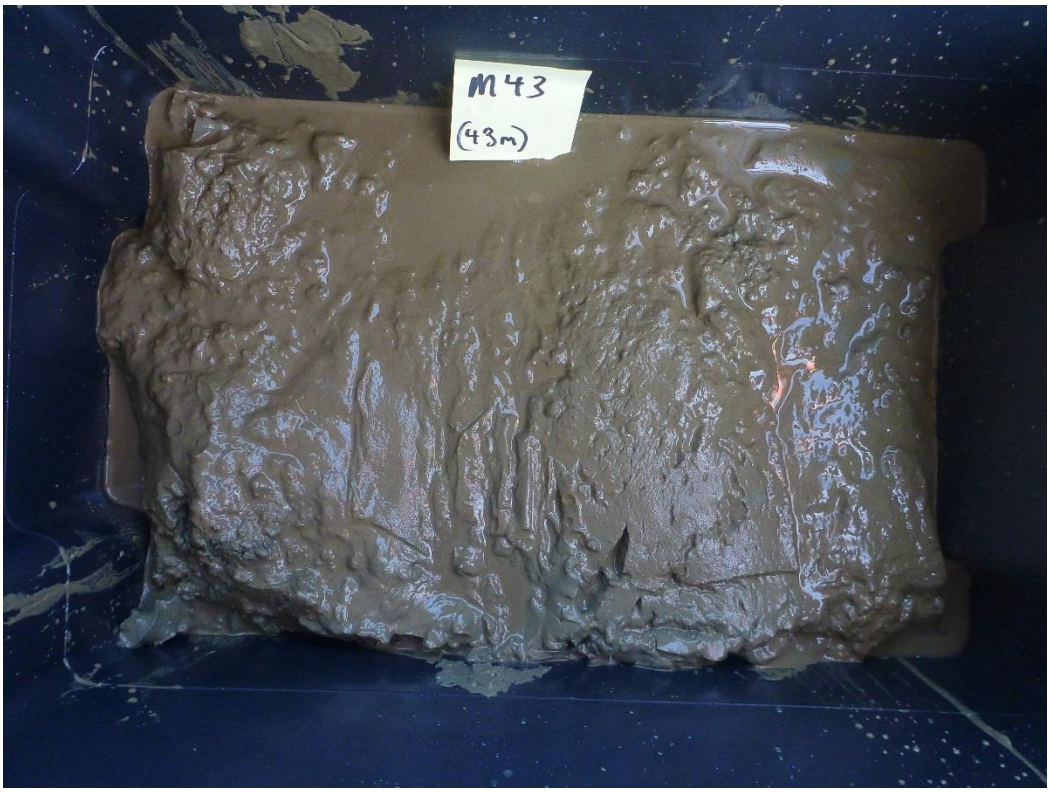

**M31**



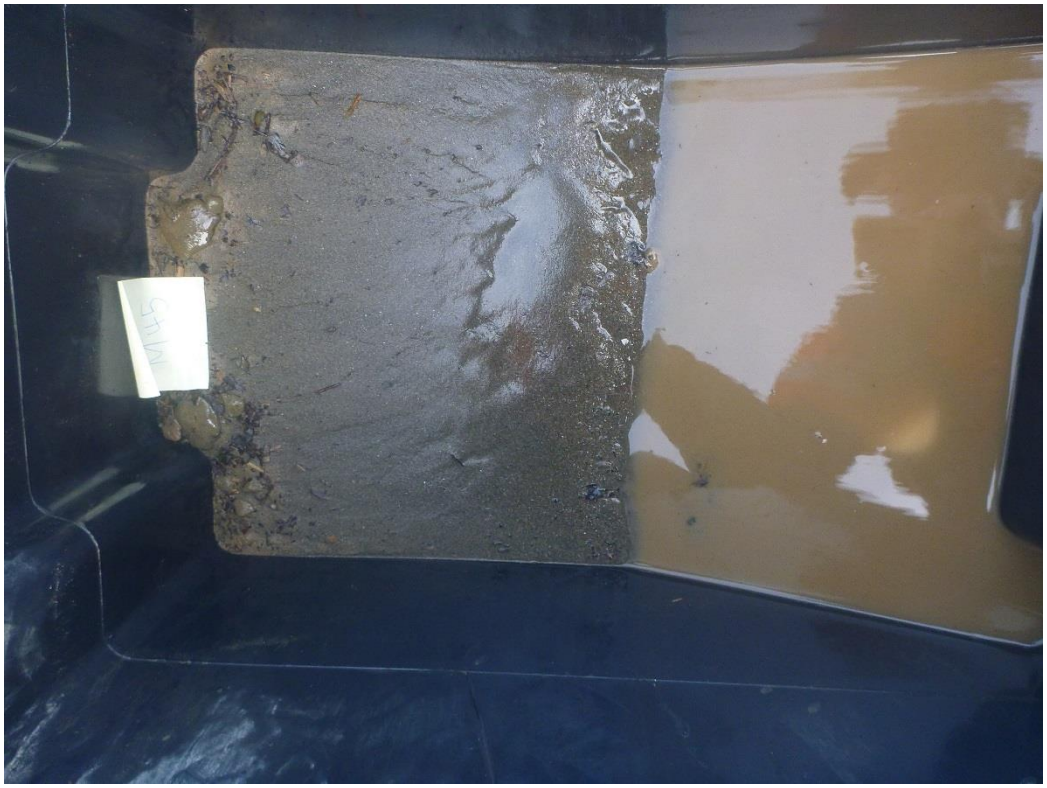
**M37**




**M43**



**M45**



**M46**






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