



BENTHIC HABITAT, SEDIMENT AND WATER QUALITY SUMMARY REPORT

Proposed New Perth Stadium, Burswood – Stage 3





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Proposed New Perth Stadium, Burswood – Stage 3

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SUMMARY

Background

The proposed new Perth Stadium development, the project, at Burswood, is a Western Australian Government-backed initiative to develop an area of the Burswood Peninsula for a new 60,000–70,000 seat sports stadium (Figure 1). The development will be undertaken in stages and will ultimately include upgrades to the existing public transport and road network, a footbridge for pedestrian access to East Perth, as well as the sporting stadium which is planned to be completed and ready for use by 2016 (Figure 2).

The current project plans define the area of proposed development as being an approximately 93.4 ha parcel of land and water (Swan River). The area of Swan River, the site, identified as being within the project area is approximately 16 ha with two discrete areas to be included as separate stages of the development (Stages 1 and 3) (Figure 3). The Swan River portion of the Stage 3 area is 13.4 ha in area and will include the construction of a pedestrian bridge (spanning the Swan River) that will enable direct access to the stadium from East Perth (Figure 3).

A Preliminary Site Investigation (PSI) for Contamination (Golder April 2012) has been prepared over a larger area, to determine the likelihood of soil (including river sediments) and or groundwater contamination to occur at the site, and to identify any other hazardous materials which could pose a constraint to future development. The PSI involved a desktop review of the site and its environmental features, a search of relevant government databases and technical reports, a review of historical site activities and developments.

Based on the findings of the PSI, a Sampling and Analysis Plan (SAP) (RPS November 2012) was prepared for the in-river sediments and water was developed to guide the investigation and endorsed by the Contaminated Sites Auditor. This Summary Report relates specifically to the benthic habitat, in-river sediment and water quality results for Stage 3 area (Figure 3).

Objectives

The objectives of the Summary Report were to:

- Summarise the PSI and SAP.
- Assess the potential presence, nature and extent of contamination within the site.
- Assess the results of the sediment, pore water and surface water investigations.
- Assess the benthic habitats (nature and extent) within the site.
- Assess the human health and environmental risks from any identified contamination.
- Assess the suitability of the site for development and recommend any further works required to render the site suitable for the proposed development.

Scope of Work

The following work was undertaken to achieve the above objectives of the Summary Report:

- Provide a summary of the key findings of the PSI.
- Undertake a benthic habitat investigation for the site and up and down stream of the site.
- Provide a summary of the SAP; outline any changes to the field work such as sampling methodologies and any changes to the analysis suite (as applicable).
- Undertake a sediment, pore water and surface water sampling and analysis program in areas of potential contamination.
- Comparison of sediment, pore water and surface water analysis results with applicable guidelines to ascertain the presence (if any) of contaminants representing a human health and/or environmental risk.

Sampling and Testing Program

Sediment investigations were completed within the Swan River in the vicinity of the new Perth Stadium project area, being within the area of a proposed pedestrian bridge. A total of 20 sediment cores were cored with the samples from the surface sediments, collected from 0–0.2 m below the riverbed, submitted for laboratory analysis. Additional deeper samples (0.2–0.5 m interval) were collected from six sites within the vicinity of the potential bridge supports, and from 0.5–1.0 m from two sites in the vicinity of the potential bridge supports. These locations were sampled, with laboratory analysis of samples conducted over varying depths across the site. Targeted sampling was also conducted at a number of locations of potential sources of contamination, and upstream and downstream control locations.

Sediments were analysed for the identified contaminants of concern, including metals and metalloids, organochlorine and organophosphate (OC/OP) pesticides, polycyclic aromatic hydrocarbons (PAHs), phenols, polychlorinated biphenyls (PCBs), carbamates, herbicides, total petroleum hydrocarbons (TPH), benzene, toluene, ethyl benzene and xylenes (BTEX), and asbestos. Samples were also submitted for acid sulfate soil (ASS) confirmatory analysis utilising the chromium reducible sulfur long suite and total peroxide acidity (TPA) and pHox. The potential presence of monosulfidic black ooze (MBO) sediments was determined by analysis for total organic carbon (TOC) and acid volatile sulfur (AVS). Selective elutriate testing was also performed on samples using Swan River water.

Pore water and surface water was sampled at six locations each and analysed for metals and metalloids, OC/OP pesticides, PAHs, phenols, PCBs, carbamates, TPH/BTEX, herbicides, cyanide, sulfide, volatile acids, pathogens and nutrients.

A benthic habitat survey was also undertaken throughout the study area including locations up and down stream of the site. The investigation recorded no significant seagrass or macroalgal habitats (which are recognised as key benthic primary producer habitats) across the ten transects; providing evidence that this area is of low significant ecological value. While microphytobenthos may be an important source of primary productivity in the area of the development, suitable habitat for microphytobenthos is widespread both upstream and downstream from the development site, microphytobenthos communities have been demonstrated to recover rapidly from disturbance (Larson and Sundbäck 2012) and the impacts from the proposed activities are considered to be relatively minor. From the investigation conducted, temporary increases in turbidity related to construction works are considered unlikely to have a significant detrimental impact on the benthic ecosystem in the area.

Summary of Results

Contaminant concentrations (metals, OC pesticides, and PAHs) within sediments do not pose a risk to human health in their current form. Asbestos was also detected in the sediments, predominantly in the western portion of the site, however it does not pose a risk to human health in its current state and as no removal/excavation sediments is proposed there is again no future risk to construction workers based upon current development plans.

Concentrations of heavy metals, OC pesticides, and PAHs, were detected in the sediments above ISQG¹ guidelines at the majority of locations however exceedances appear to be concentrated in the western portion of the site. Only minimal exceedances were observed at both the up and down stream background locations. As such, given the minimal sediment disturbance anticipated owing to piling construction methodologies, any sediments mobilised are not anticipated to have a significant impact on downstream environments. Re-suspension of sediments is also expected as a consequence of river flooding and tidal movements in any case (albeit over different time-scales). Further more as no significant benthic habitats were identified in the site area or downstream from the site, the risk to such habitats from sediment mobilisation is greatly reduced. Elutriate analysis with Swan River water indicated minimal leaching of heavy metals (limited to arsenic and boron exceeding the FWG) during suspension of sediment into the water column; thus limiting exposure to benthic habitats and aquatic organisms.

All sediments are classified potential acid sulfate soils (PASS). Acidity, both inorganic and organic forms, were detected across the area with inorganic (i.e. pyritic acidic) being the dominate form. MBOs were not identified in the sediments. There is a significant amount of acid neutralising capacity (ANC) in the sediments, albeit the larger-proportion of the ANC is likely not kinetically available, as it is bound in shell fragments. The kinetics for dissolution of this larger shell grit material are likely to be too slow to neutralise acidity generated from oxidation of pyritic sulfur. This is not significant, however, as material is unlikely to be dredged or removed from the river, as such the potential for oxidation of the sediments, and thereby release of acid, is minimal. As such no specific management of sediments in relation to ASS is required on the assumption that material remains within the river environment.

¹ Interim Sediment Quality Guidelines (Department of Environment and Conservation (DEC) 2010)

Pore water contaminants exceeding the Department of Health (2006) guidelines are unlikely to pose a risk to human health, as it is unlikely that pore water would be extracted for non-potable uses, i.e. not a usable source of water, and workers are unlikely to be exposed to sediment

Elevated concentrations of heavy metals, heptachlor and nutrients were detected in the pore water samples above FWGs² and MEPGs². There is the potential for these parameters to impact the down-gradient Swan River water quality; however it is acknowledged that any contaminants entering the water column will be diluted.

With the exception of a limited risk presented by pathogens, surface water contaminants do not pose a risk to human health. Exceedances of metals and nutrients FWG/MEPG guidelines were observed, however concentrations were relatively consistent across the site, including up and downstream locations, and as such are considered to be representative of background conditions.

Summary of Conclusions and Recommendations

Sediments within the site pose low to no risk to the ecology of the Swan River given the proposed construction methodologies and the lack of benthic habitats in the vicinity of the site. Therefore no specific management of sediments would be required during construction and the area is suitable for the proposed use. As such no further investigations are considered necessary for the site.

Should the construction methodologies for the bridge construction be revised and/or changed, or dredging works be required, then reassessment of the potential risk posed by the revised construction methodology should be considered.

No ongoing monitoring is currently proposed to be required at this state however; should the construction methodologies for the bridge construction be revised and or changed, or dredging works be required, then a reassessment for any ongoing monitoring will be required.

² Freshwater Guidelines (FWG) and Marine Ecosystem Protection Guidelines (MEPG), (DEC 2010)

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(compiled at rear of report)

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- APPENDIX 8: Pore Water and Surface Water Laboratory Reporting
- APPENDIX 9: Chemical Degradation and Fate of Contaminants

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1.0 BACKGROUND

1.1 Introduction

The proposed new Perth Stadium development, the project, Burswood, is a Western Australian Government-backed initiative to develop an area of the Burswood Peninsula for a new 60,000–70,000 seat sports stadium (Figure 1). The development will be undertaken in stages and will ultimately include upgrades to the existing public transport and road network, a footbridge for pedestrian access to East Perth, as well as the sporting stadium which is planned to be completed and ready for use by 2016 (Figure 2).

The current project plans define the area of proposed development as being an approximately 93.4 ha parcel of land and water (Swan River). The project area has been divided into four separate stages for assessment (Figure 3). Each of the four stages will be investigated for contamination and assessed by a Contaminated Sites Auditor (CSA).

The area of Swan River identified as being within the project area is approximately 16 ha with two discrete areas to be included as separate stages of the development (Stages 1 and 3) (Figure 3). The Swan River portion of the Stage 3 area, the site, is 13.4 ha in area and will include the construction of a pedestrian bridge (spanning the Swan River) that will enable direct access to the stadium from East Perth (Figure 3).

A Preliminary Site Investigation (PSI) for Contamination (Golder April 2012) has been prepared over a larger area, to determine the likelihood of soil (including river sediments) and or groundwater contamination to occur at the site, and to identify any other hazardous materials which could pose a constraint to future development. The PSI involved a desktop review of the site and its environmental features, a search of relevant government databases and technical reports, a review of historical site activities and developments. Based on the findings of the PSI, a Sampling and Analysis Plan (SAP) (RPS November 2012) was prepared for the in-river sediments and water was developed to guide the investigation and endorsed by the CSA.

This Summary Report relates specifically to the benthic habitat, in-river sediment and water quality results for Stage 3 area (Figure 3). A separate report has been prepared for the Stage 1 in-river area.

This Summary Report has been prepared in general accordance with the procedures outlined in the Department of Environment and Conservation (DEC 2001–2010) *Contaminated Sites Management Series*.

This Summary Report does not strictly conform to the requirements for a Detailed Site Investigation (DSI), and has been prepared to provide “preliminary advice” on baseline sediment and water quality to the project team. This reflects the early stage of planning of the development and our current limited understanding of the project design, including bridge infrastructure.

A completed DEC Site Summary Form is presented as Appendix I.

2.0 OBJECTIVES AND SCOPE

2.1 Objectives

The objectives of the Summary Report were to:

- Summarise the PSI and SAP.
- Assess the potential presence, nature and extent of contamination within the site.
- Assess the results of the sediment, pore water and surface water investigations.
- Assess the benthic habitats (nature and extent) within the site.
- Assess the human health and environmental risks from any identified contamination.
- Assess the suitability of the site for development and recommend any further works required to render the site suitable for the proposed development.

2.2 Scope of Work

The following work was undertaken to achieve the above objectives of the Summary Report:

- Provide a summary of the key findings of the PSI.
- Undertake a benthic habitat investigation for the site and up and down stream of the site.
- Provide a summary of the SAP; outline any changes to the field work such as sampling methodologies and any changes to the analysis suite (as applicable).
- Undertake a sediment, pore water and surface water sampling and analysis program in areas of potential contamination.
- Comparison of sediment, pore water and surface water analysis results with applicable guidelines to ascertain the presence (if any) of contaminants representing a human health and/or environmental risk.

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3.0 SITE IDENTIFICATION

Figures 2 and 3 present the site layout and project site boundary. Site details for the project are provided in Tables A and B.

Table A: Project Area Detail Summary

Common Title/Name	New Perth Stadium		
Area	Total area of 93.4 ha		
Area Coordinates (Entire Development)	Location	Coordinates (UTM50s)	
		Easting	Northing
	South-west	394,514	6,463,693
	North-west	394,542	6,464,820
	North-east	395,390	6,464,740
	South-east	395,750	6,464,250
Locality Map	Figure 1		
Site and Surrounding Land Use Plan	Figure 3		

Table B: Stage 3 Area Detail Summary

Area Coordinates (Stage 3 Assessment Area)	Location	Coordinates (UTM50s)	
		Easting	Northing
	South-west	394,541	6,463,693
	North-west	394,402	6,464,155
	North-east	394,736	6,464,269
	South-east	394,887	6,463,989
Certificates of Title (Volume/Folio)	Crown land (estuary component only)		
Controlling Authority	The Swan River Trust (estuary component only)		
Current Zoning	Waterways		
Stage 3 Area	Stage 3 area of 13.4 ha (<i>estuary component only</i>)		
Locality Map	Figure 3		

3.1 Regional Setting

The project area includes a large portion of the Burswood Peninsula, the Swan River and a small parcel of land to the south of Claisebrook Cove within East Perth on the western side of the Swan River (Figure 3). The site is surrounded by the following current land uses:

- Burswood Peninsula includes a golf course (Burswood Park), a race course (Belmont Racecourse), the state tennis centre, and Perth Crown Complex and Convention Centre
- East Perth contains light commercial land uses with parkland fringing the river, the Claisebrook Cove inlet, and Gloucester Park (horse trotting arena).

The Stage 3 in-river investigation area includes a larger area of river and inter-tidal river bank along the eastern shoreline of the development area within Claisebrook / East Perth (Figure 3). The Stage 1 in-river investigation area includes a small area of river and inter-tidal river bank along the western boundary of the development area within Burswood Peninsula. This Summary Report relates specifically to Stage 3 in-river investigation area. A separate Summary Report has been prepared for Stage 1 and a separate contamination investigation is being undertaken for the terrestrial contamination component for this development.

3.2 Development Plan

The new Perth Stadium, Burswood project proposes a major redevelopment of the Burswood Peninsula. The current project area is presented as Figure 2.

3.3 Previous Investigations

The following relevant investigations have been undertaken for the site:

- Golder Associates, Rev 0, March 2012. Desktop Study and Review of Previous Environmental Reports – Proposed Perth Major Stadium. Prepared for the Public Transport Authority
- Golder Associates, Rev 0, April 2012. *Preliminary Site Investigation Report – Proposed Perth Major Stadium*. Prepared for the Public Transport Authority
- Golder Associates, Rev 2, May 2012. Sampling and Analysis Plan and Data Quality Objectives – Environmental Investigation Proposed Burswood Stadium. Prepared for the Public Transport Authority
- RPS Environment and Planning Pty Ltd, November 2012. Sediment and Water Quality Sampling and Analysis Plan, Proposed Burswood Stadium. RPS, Perth
- RPS Environment and Planning Pty Ltd, 6 December 2012. Perth Stadium Sediment and Water Quality Sampling and Analysis Plan, Response to Additional Auditor Comments. RPS, Perth.

4.0 SITE HISTORY

4.1 Overview

The following summary details previous and current land uses adjacent to the site (being the Swan River) at both Claisebrook and the Burswood Peninsula. The information has been reproduced from the *Proposed Perth Major Stadium – Preliminary Site Investigation (PSI) Report* (Golder April 2012).

4.1.1 Burswood Peninsula

Historic land uses on the Burswood Peninsula have included a market garden, a piggery, a dairy, a golf course, and industrial sites.

There is extensive unconsolidated fill across the majority of the Burswood Peninsula.

Landfill has been encountered across the peninsula ranging from at the surface to 8.0 m in depth.

The DEC has classified the Burswood Park Reserve under the *Contaminated Sites Act 2003* as “Possibly Contaminated – Investigation Required”.

There is potential contamination associated with the disposal of ash slurry from the East Perth Power Station.

There is asbestos contamination in areas of the site, including previous James Hardie Industries and Swan Portland Cement site.

Asbestos containing material (ACM) was excavated during construction of the northern bypass road, and reburied and capped on a site between the current locations of the tennis centre and the golf course.

Areas of Swan Portland Cement and James Hardie Industries sites have been remediated and capped with a layer of clean fill.

Septic waste filter beds located on the Burswood Peninsula were used to filter waste from Claisebrook prior to discharging to the Swan River.

Chemical classification of soils in areas of the Burswood Peninsula have reported elevated levels of:

- hydrocarbons
- organochlorine pesticides (OP)
- heavy metals

- polycyclic aromatic hydrocarbons (PAH)
- polychlorinated biphenyls (PCB).

Leachate from domestic waste and general fill has been entering the Swan River.

Groundwater investigations have reported elevated levels of heavy metals and nutrients.

4.1.2 Claisebrook and East Perth

Historical land uses in Claisebrook include the former East Perth Gasworks, tanneries, East Perth power station, a sewage pumping station, rail workshops, and an abattoir.

The sewage pumping station was reported as being south of Claisebrook Drain.

The DEC has classified the Claisebrook foreshore as “Possibly Contaminated – Investigation Required”.

Substantial areas of fill were encountered during the development of the Claisebrook Inlet.

Elevated concentrations of PAHs, heavy metals, and pesticides have been reported in the Swan River and Claisebrook Drain sediments.

4.1.3 General

There are numerous Aboriginal sites across the Burswood Peninsula and Claisebrook area, and one European Heritage site on the Burswood Peninsula (the Burswood Canal).

There is a history of waste disposal across the Burswood Peninsula and Claisebrook, where waste materials have included:

- spoil from river dredging
- ash slurry
- demolition rubble
- railway waste consisting of ash clinkers
- general household waste
- gasworks waste.

Acid Sulfate Soils (ASS) are present in areas of the Burswood Peninsula and the Claisebrook site.

Groundwater can be expected to be encountered between 0 and 5 m Australian Height Datum (AHD).

4.2 Titles

The Swan River is Crown land and as such no title exists for the Swan River. A title search was undertaken to identify past owners of the site and inferred land uses for the terrestrial areas (Claisebrook and Burswood Peninsula) adjacent to the Swan River. A detailed account of past land uses and titles are presented in the PSI (Golder April 2012).

4.3 Historical Photography

A review of historical aerial photography was undertaken from 1953 to 2011 to review past land-based activities that have occurred at Claisebrook and Burswood Peninsula. Historical aerials and a summary of past activities are presented within the PSI (Golder April 2012).

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5.0 SITE DESCRIPTION

5.1 Swan River and Foreshore Environment

During sampling it was noted that the western foreshore consisted of generally fine material, including silts and clays, than the eastern boundary. The shoreline vegetation consisted of grass, trees and shrubs lining the full extent of the shoreline (except a small section of open “beach”). The nearshore areas also contained rock and shell fragments as observed along the eastern shore.

5.2 Topography and Bathymetry

The topography of the foreshore adjacent to the Swan River varies from approximately 1 mAHD to 5 mAHD in the western portion of the site.

The bathymetry of the Swan River within the site area ranges from approximately 0.7 mAHD to -1.8 mAHD within the navigation channel.

5.3 Soil Mapping

1:50,000 Geological mapping indicates that the western shoreline area of the Burswood Peninsula is classified as Clayey Silt (M_{C1}), yellow–brown to strong brown, blockey, mottled, soft, with variable clay content, dispersive in part, of alluvial origin.

The majority of the East Perth foreshore is classified as Calcareous Sand (S_1), white, fine to medium grained, sub-rounded quartz and shell debris, of eolian origin, however the East Perth shoreline in the vicinity of the Causeway is mapped as Clay (C_1), mid to dark grey, soft, saturated, predominant 0.2 m thick oyster shell bed near surface, of alluvial origin (Geological Survey of Western Australia 1986).

The Swan River sediments in Perth Waters (downstream of the Causeway) are mapped as sand (S_{22}), pale coloured quartz grains with shell debris, low carbonaceous content, well sorted unimodal (Geological Survey of Western Australia 1986). The Swan River sediments in the vicinity of the site are not classified.

5.4 Acid Sulfate Soils

DEC mapping indicates the Swan River is “high to moderate risk of containing Actual Acid Sulfate Soils (AASS) or Potential ASS (PASS) occurrence within three metres of natural ground surface” (Landgate WA Atlas 2012).

5.5 Wetlands

The site is protected by the *Swan and Canning Rivers Management Act 2006*, and is listed as a “Conservation” wetland.

5.6 Water Quality

The hydrological status of the Swan River Estuary is highly seasonal (Stephens and Imberger 1996), primarily due to the influence of surface water run-off (Thurlow et al. 1986). The large majority of rainfall in Perth occurs during winter, resulting in a distinct period of high surface water run-off to the estuary. In tidally influenced waters of the Swan River Estuary, such as Perth Water, this results in a change from saline water (similar to marine waters) in summer, to fresh–brackish water in winter.

Surface water run-off into the Swan River Estuary is often nutrient enriched (due to fertiliser addition and other sources within the catchment), resulting in the system becoming increasingly eutrophic (Peters and Donohue 2001). These eutrophic conditions have led to more pronounced and more frequent algal blooms over the past few decades (Thompson 2001), which are sometimes toxic and cause fish kills (Webb 2005). Toxic blooming algae such as dinoflagellates are particularly harmful and can cause significant fish kills; for example a large dinoflagellate (phytoplankton) bloom in 2003 killed an estimated 300,000 fish (Swan River Trust 2003).

The concentrations of metals such as zinc, cadmium, lead and copper have increased in the Swan River Estuary since European settlement (Gerritse et al. 1998). However, sampling by Rate et al. (2000) found that total metal concentrations in the sediments of the Swan River Estuary were low in comparison to Australian environmental assessment guidelines.

The Swan River Trust (SRT) has been undertaking Swan River water quality monitoring in the vicinity of the project area for many years (Nile Street sampling location). Additionally RPS utilised the SRT long-term monitoring location as a reference site for a twelve month water quality investigation undertaken for Perth Waters in 2010–2011 (RPS 2011); this study adopted an expanded water quality suite including physico-chemical parameters, nutrients and metal species.

5.7 Benthic Habitat

A benthic habitat assessment was conducted in the Swan River between the Windan and Causeway Bridges on 7 January 2013. The investigation involved ten, 100 m transects, using a Sony HDR-XR160 high definition camera attached to an adjustable frame, to determine the extent and nature of the benthic habitat within and adjacent to the proposed development footprint. The investigation recorded no significant seagrass or macroalgal habitats (which are recognised as key benthic primary producer habitats)

across the ten transects; providing evidence that this area is of low significant ecological value. While microphytobenthos may be an important source of primary productivity in the area of the development, suitable habitat for microphytobenthos is widespread both upstream and downstream from the development site, microphytobenthos communities have been demonstrated to recover rapidly from disturbance (Larson and Sundbäck 2012) and the impacts from the proposed activities are considered to be relatively minor. From the investigation conducted, temporary increases in turbidity related to construction works are considered unlikely to have a significant detrimental impact on the benthic ecosystem in the area.

Full details regarding the investigation are presented in Section 14.

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6.0 CONTAMINANTS OF POTENTIAL CONCERN

With reference to the activities identified within the Department of Environment: Contaminated Sites Management Series, *Potentially Contaminating Activities, Industries, and Land Uses*, October 2004 the following areas were considered potential sources of contamination:

- historical upstream activities – Claisebrook
- historical upstream activities – Burswood Peninsula
- Claisebrook Drain
- historical filling – Burswood Peninsula.

No other areas of potential contamination were identified within the site from the historical review.

6.1 Historical Upstream Activities – Claisebrook

Due to the historical upstream industrial processes there is the potential for contaminants to have settled within sediments with the site area.

As such the suite of potential contaminants for sediments within this area would include:

- gasworks – trace metals, cyanide, phenols, PAHs, nitrate, thiocyanates
- power station – trace metals within cinder ash and PAHs
- sewage pumping station – nutrients, trace metals, phenols and pathogens
- tannery – acids, trace metals, phenols, hydrocarbons, cyanide, ammonia
- abattoir – nutrients, biological oxygen demand, oils and grease
- rail workshop – TPH, solvents, resin, trace metals, PAHs, creosote, nutrients, carbamates, organochlorine / organophosphate (OC/OP) pesticides, herbicides.

6.2 Historical Upstream Activities – Burswood Peninsula

Due to the historical upstream industrial processes there is the potential for contaminants to have settled within sediments with the site area.

As such the suite of potential contaminants for sediments within this area would include:

- landfills – trace metals, PAHs, TPH/BTEX³, and OC/OPs.
- market garden – trace metals, OC/OPs, herbicides, fungicides, hydrocarbons
- piggery – trace metals, nutrients, oil and grease, pesticides, pathogens
- dairy – trace metals, nutrients, oil and grease, pesticides, pathogens
- golf course – carbamates, OC/OPs, nitrates, herbicides, trace metals, nutrients
- race track – carbamates, OC/OPs, nitrates, herbicides, trace metals, nutrients
- Swan Portland Cement/James Hardie Products – trace metals and asbestos. Asbestos may be present as fibres or in ACM fragments.

6.3 Historical Filling – Burswood Peninsula

The potential exists for the leaching of contaminants from historical fill material used at the Burswood Peninsula. The potential contaminants in fill have been sourced from Proposed Perth Major Stadium – Preliminary Site Investigation (Golder April 2012). It has been noted that due to the uncontrolled nature of the filling and the lack of designated areas that fill types can only be inferred, in addition it is possible that liquid waste was also disposed of in this area. Fill used on the peninsula may include the following materials:

- cinders – ashes and slag from coal burning steam locomotives
- domestic solid wastes
- industrial solid wastes
- general solid wastes
- sand fill
- tree burning area
- night soil – effluent from septic tank wastes (biosolids), mostly being untreated
- asbestos
- brick work and rubble
- coal tar and its derivatives.

6.4 Preliminary Conceptual Site model

RPS has adopted a risk-based approach to the assessment of the site, an important thread throughout the overall process of risk assessment and consistent with the DEC *Contaminated Sites Management Series* (2001–2010). Such an approach is necessary to

³ BTEX = Benzene, toluene, ethyl benzene, and xylenes.

formulate and develop a conceptual model for the site, which supports the identification and assessment of pollutant linkages. A conceptual model represents the characteristics of the site in diagrammatic or written form that shows the possible relationships between contaminants, pathways and receptors (pollutant linkages). In this context the following definitions apply:

- a contaminant source – a substance that is in, on or under the land and has the potential to cause harm or to cause pollution of controlled waters
- a receptor – in general terms, something that could be adversely affected by a contaminant, such as people, an ecological system, property, or a water body
- a pathway – a route or means by which a receptor can be exposed to, or affected by, a contaminant.

Each of these elements can exist independently, but they create a risk only where they are linked together, so that a particular contaminant affects a particular receptor through a particular pathway. This kind of linked combination of contaminant–pathway–receptor is described as a pollutant linkage.

6.4.1 Source, Pathway, Receptor Linkages

From a review of the potential sources, pathways and receptors it is evident a number of pollutant linkages potentially exist resulting from historic and current sources, pathways and receptors. As such the receiving environment/receptor is considered at potential risk from previous and current site practices and it is the potential for these various pollutant linkages to exist, that form the basis of this SAP. A simplified CSM for the estuary component of the site is presented in Table C.

6.4.1.1 Potential Pollutant Linkages

The CSM identifies several plausible pathways for sediment, pore water and surface water contaminants to reach current and future end users, from previously identified contamination sources. The primary pollutant linkages are summarised as follows.

Table C: Preliminary Conceptual Site Model Overview

Source		Pathways				Receptors	
1° Source	Potential Contaminants	Release Mechanism	2° Source	2° Release Mechanism	Exposure Routes	Human	Ecological
Contaminated sediment	Pesticides Nutrients Metals Hydrocarbons Phenols Cyanide Pathogens PCBs Herbicides Carbamates VOCs Asbestos Sulfur	Exposure to contaminated Swan River sediments			Direct exposure to sediments	Construction workers Recreational users of the Swan River	Aquatic flora and fauna Surface water Underlying groundwater
					Ingestion of sediments	As above	Aquatic flora and fauna
		Leaching of contaminants into pore waters	Pore water	Release into Swan River	Ingestion of pore water	NA	Aquatic flora and fauna
		Leaching of contaminants into surface water	Surface water	Release into Swan River	Incidental ingestion of surface water	Construction workers Recreational users of the Swan River	Aquatic flora and fauna Terrestrial flora and fauna
					Direct exposure to surface water – dermal contact	Construction workers Recreational users of the Swan River Off-site users	Aquatic flora and fauna Terrestrial flora and fauna
		Vertical migration of contaminants into groundwater	Aquifer	Lateral migration of groundwater	Direct exposure to groundwater Ingestion of irrigation water	Recreation park users Construction workers Off-site groundwater users	Terrestrial flora and fauna
		Bioaccumulation of contaminants	Aquatic flora and fauna		Ingestion of contaminated flora and fauna	Consumers of aquatic organisms	Aquatic flora and fauna Terrestrial fauna

Source		Pathways				Receptors	
1° Source	Potential Contaminants	Release Mechanism	2° Source	2° Release Mechanism	Exposure Routes	Human	Ecological
Contaminated pore water	Pesticides Nutrients	Exposure to contaminated pore water			Ingestion of pore water	NA	Aquatic flora and fauna
	Metals Hydrocarbons Phenols Cyanide Pathogens PCBs	Migration of contaminants into surface water	Surface water	Release into Swan River	Incidental ingestion of surface water	Construction workers Recreational users of the Swan River	Aquatic flora and fauna Terrestrial fauna
					Direct exposure to surface water	Construction workers Recreational users of the Swan River	Aquatic flora and fauna Terrestrial fauna
	Herbicides Carbamates VOCs Sulfide	Vertical migration of contaminants into groundwater	Aquifer	Lateral migration of groundwater	Direct exposure to groundwater Ingestion of irrigation water	Recreation park users Construction workers Off-site groundwater users	Aquatic flora and fauna Terrestrial flora and fauna
		Bioaccumulation of contaminants	Aquatic flora and fauna		Ingestion of contaminated flora and fauna	Consumers of aquatic organisms	Aquatic flora and fauna Terrestrial fauna
Contaminated Surface water	Pesticides Nutrients Metals Hydrocarbons Phenols Cyanide Pathogens	Exposure to contaminated surface water			Incidental ingestion of surface water	Construction workers Recreational users of the Swan River	Aquatic flora and fauna Terrestrial flora and fauna
					Direct exposure to surface water	Construction workers Recreational users of the Swan River Off-site users	Aquatic flora and fauna
	PCBs Herbicides Carbamates VOCs Sulfide	Vertical migration of contaminants into groundwater	Aquifer	Lateral migration of groundwater	Direct exposure to groundwater Ingestion of irrigation water	Recreation park users Construction workers Off-site groundwater users	Aquatic flora and fauna Terrestrial flora and fauna
		Bioaccumulation of contaminants	Aquatic flora and fauna		Ingestion of contaminated flora and fauna	Consumers of aquatic organisms	Aquatic flora and fauna Terrestrial fauna

Post-construction pathways for human exposure to any sediment borne contaminants are limited, as the proposed development does not include/encourage primary or secondary contact activities in the Swan River. Potential contact with river sediments is therefore primarily restricted to construction workers during initial construction of the pedestrian footbridge, and any subsequent maintenance and servicing of the bridge support structures.

Human exposure via surface water contact is plausible as the Swan River is often used for recreation which has the potential to result in primary and secondary contact. As the site will be connected to main water supply there will be no human consumption of surface water, as a potable water supply, although there is the potential for incidental ingestion during water sport activities.

The ecological receptor is the Swan River. The Swan River is the final discharge location for any groundwater underlying the land-based components of the proposed development and stormwater run-off from the Burswood Peninsula and Claisebrook catchment area. Therefore sediments are susceptible to any potential contamination within groundwater and stormwater. Contamination from land uses upstream of the site also has the potential to impact sediments and surface waters.

Based on the results of the PSI historical review, and the CSM assessment above, the following priority areas for further investigation are identified:

- sediments within the vicinity of stormwater drains outfalls (Claisebrook Drain)
- sediments, including elutriates, in the vicinity of the proposed in-river bridge pylon construction locations
- sediments in the vicinity of the Claisebrook eastern shoreline
- pore water within the vicinity of the Claisebrook eastern shoreline and drain outfall
- surface water in the vicinity of the site.

As further information becomes available following the investigation, the CSM will be reviewed and updated accordingly.

7.0 SEDIMENT SAMPLING AND ANALYSIS PLAN

7.1 Sampling Objectives/Strategy

The objectives of the sediment sampling program were to assess the presence and nature of potential sediment contamination identified during the PSI and to provide a preliminary assessment as to the likely extent and magnitude of the contamination and whether it has the potential to degrade water quality during the proposed in-river construction activities (i.e. construction of the pedestrian footbridge).

Elutriate studies were also completed on surficial studies in the vicinity of proposed bridge piles to determine whether there is any release of contaminants during suspension of material from installation of piles.

7.2 Sediment Sampling Locations

Core sampling was undertaken in preference to grab samples. Figure 4 presents the sampling area and proposed sediment sampling locations within the site. Table 1 presents the sediment analytical suite.

7.2.1 Targeted Sampling Locations

RPS undertook targeted sampling in the proposed location of the footbridge, adjacent to the western and eastern river shorelines, and near drain outlets to characterise the inputs from stormwater discharge. “Reference” sampling locations were taken both upstream (T01 and T09) and downstream (T02 and T24) of the site.

7.2.2 Grid Sampling Locations

Additional broad-scale grid⁴ sampling was undertaken within the project area to assist in characterising background conditions. A total of 24 sampling locations were completed across the two investigation areas (including reference locations).

7.3 Sediment Sampling Methodology

The geographic co-ordinates of each sampling location were recorded using a hand held GPS. Sampling was undertaken using a hand held push core sediment sampler, collected from a boat. Samples were collected from 20 locations, with the surface sediments (0–0.2 m) submitted for laboratory analysis. Additional deeper samples (0.2–0.5 m interval) were collected from six locations (T15–T20) within the vicinity of the potential

⁴ The reference to a grid is nominal, recognising the broad-scale and low-density sampling being undertaken for samples outside of the target areas, and not including reference sites located upstream and downstream.

bridge supports, and from 0.5–1.0 m from two locations (T14 and T18), also in the vicinity of the potential bridge supports⁵. The push core sediment sampler, from the boat, was suitable to collect samples to the proposed depth at all locations. No alternative sediment collection method, i.e. diving, was required.

7.3.1 Sampling Intervals

The sampling intervals were as follows:

- 0 to 0.20 m
- 0.20 to 0.50 m
- 0.50 to 1.00 m.

Based on the proposed in-river construction activities and subsequent low risk of disturbing/relocating contaminated sediments, the surface interval (0–0.2 m⁶) were targeted for analysis (at all sites). In addition, four selected samples collected from deeper intervals were also analysed for ASS and monosulfidic black ooze (MBOs) (refer Table 1). All other collected samples were stored appropriately at the laboratory for subsequent analysis should it be deemed necessary.

The upper sediments were targeted for sampling; as these are the sediments that have the highest risk of disturbance/relocation during construction works. It has been assumed that construction will be completed via driving of piles from a barge which results in only minimal disturbance of sediments in the immediate vicinity of the piles. Deeper underlying sediments are typically not disturbed during piling activities. Should the proposed construction techniques differ then additional sampling may potentially be required to be completed in a later investigation. Additional sampling may also potentially be required based upon the final design of pedestrian bridge, i.e. number of piles and depth; this however will be addressed in a revised SAP or addendum, if required.

Geological units conformed for the sampling intervals outlined above; one sample was taken per lithological unit. No additional samples were taken as no visual or olfactory evidence of contamination was identified. Sediment sampling logs are presented in Appendix 2.

7.4 Assessment Levels

Sediment analysis results were compared with the following criteria:

⁵ The maximum sampling depth will vary based upon whether refusal is encountered.

⁶ It is also recognised that the surface sediments are most likely to contain the highest elevations of contaminants, and therefore by testing this narrow interval it provides a conservative basis for assessing the presence of contaminants generally.

- DEC (2010) Assessment Levels for Soil, Sediment and Water
 - Interim Sediment Quality Guidelines – Low (ISQG-Low)
 - Interim Sediment Quality Guidelines – High (ISQG-High)

- DEC (2009 and 2011) Acid Sulfate Soils Guideline Series.

Assessment levels were chosen on the basis of the end uses of the development, being a permanent footbridge spanning the river.

ISQGs have been developed as trigger (assessment) levels, that if exceeded, prompt further investigation to ensure the protection of the environment. Where total concentrations are detected less than the ISQG-Low values, then no further action is required. Where total concentrations are above the ISQG-Low but less than the ISQG-High, then an assessment against background concentrations should be made. Where concentrations exceed either the ISQG-High or the ISQG-Low and background concentrations, then an assessment of the bioavailability of the contaminants should be made.

Assessment criteria for ASS were adopted from the Department of Environment and Conservation (DEC May 2009) guideline, *Identification and Investigation of Acid Sulfate Soils and Acid Landscapes*, and Department of Environment and Conservation (DEC July 2011) guideline, *Treatment and Management of Soils and Water in Acid Sulfate Soils Landscapes*, specifically Table I.

Table D: presents texture based ASS action criteria for management. For excavation volumes in excess of 1,000 tonnes ASS with $\geq 0.03\%$ or ≥ 18.7 mol H⁺/tonne equivalent acidity requires a detailed management plan.

Table D: DEC ASS Management Action Criteria (DEC 2009, 2011)

Type of Material		Action Criteria (<1000 Tonnes)		Action Criteria (>1000 Tonnes)	
		Existing + Potential Acidity		Existing + Potential Acidity	
Texture	Approx. Clay Content	Equivalent Sulfur	Equivalent Acidity	Equivalent Sulfur	Equivalent Acidity
	(%<0.002 mm)	(%S)	(H+/tonne)	(%S)	(H+/tonne)
Coarse Texture (sands to loamy sands)	≤5	0.03	18	0.03	18
Medium Texture (sandy loams to light clays)	5–40	0.06	36	0.03	18
Fine Texture (medium to heavy clays and silty clays)	≥40	0.10	62	0.03	18

7.5 Variations to the Sediment Sampling and Analysis Plan

7.5.1 Contamination

No variations to the sediment sampling plan were required.

7.5.2 ASS

No variations to the ASS sampling program were required.

8.0 PORE WATER SAMPLING

8.1 Sampling Objectives

The objectives of the pore water sampling program are to assess the presence and nature of contamination, establishing baseline conditions of deeper pore water within the inshore sediments. This information can be used to assist in determining current impacts of contaminated groundwater migration to the river, and future effects created by surcharging the site for construction of the stadium.

8.2 Selection of Sampling Locations

Pore water samples were collected from the sediments within the vicinity of the shoreline areas within the Stage 1 and Stage 3 assessment boundaries (ten locations). Pore water sampling locations (T07–08 in Stage 1, and T29–32 in Stage 3) are presented in Figure 4. The pore water locations in Stage 1 were utilised due to the position of their locations in relation to the proposed footbridge.

Pore water samples will be collected predominantly from the near shore environments due to the potential for greater contamination to be present due to the historic activities and potential inputs from groundwater.

Table 2 presents the pore water analytical suite.

8.3 Methodology

Pore water was purged and sampled at less than 1 L per minute using a peristaltic pump, connected to a stainless steel tube with a screened section at its base, fitted with an in line 0.45 µm filter (where necessary – for filtering out fine particulates from samples for dissolved metals and certain nutrients). The pore water sampler was inserted to at least 1 m below the surficial river sediments, to ensure collection of pore water rather than water from the river itself (USEPA 2007). Samples for hydrocarbon testing were not filtered to avoid potential underestimation of concentrations. A multi-parameter meter was also used to measure; pH, electrical conductivity (EC), redox potential, dissolved oxygen (DO) and temperature. Purging was undertaken until the field parameters are stable (generally within 10%).

It was recognised that pore water extraction methods have been shown to alter pore water chemistry and affect metal contaminant bioavailability and toxicity. As such to reduce the potential for chemical changes to occur to the pore water during sampling the following was implemented.

- Samples were collected directly into appropriately preserved, where preservation was required, laboratory supplied containers.

- Sampling containers were filled to ensure no headspace was present.
- Samples were placed immediately into eskies containing ice to cool the samples (Simpson et al. 2005).

The pore water stabilisation data was recorded on the pore water sampling logs presented in Appendix 3. Instrument calibration logs are presented in Appendix 4.

8.4 Assessment Guidelines

Pore water analysis results were compared with criteria presented in the DEC (2010) *Assessment Levels for Soil, Sediment and Water* and summarised as follows:

- Freshwater Guidelines (FWG)
- Marine Ecosystem Protection Guidelines (MEPG)
- Non-potable Drinking Water Guidelines (DNP).

In cases where no guideline is reported, a guideline was sourced from the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC/ARMCANZ 2000).

The assessment of pore water was based on the beneficial use and management objectives of the pore water. The beneficial use of pore water was identified as intake by benthic fauna and flora. FWG and MEPG guidelines define assessment values for consideration of ecological risk in surface water bodies.

FWG define values for the assessment of ecological risk in surface water bodies such as wetlands or creeks. The pore water is being sampled from a sensitive ecosystem, the Swan River. MEPG will also be used for comparison recognising the estuarine condition of the river in summer months.

The Department of Health (DoH) have developed generic assessment criteria (DoH 2006) to protect the public who may be using, or may be exposed to, groundwater containing chemical residues in a non-potable setting, i.e. recreational contact. The DNP are generally a factor of 10 times the corresponding Australia Drinking Water Guidelines (DWG) Health value⁷ (or aesthetic value⁸ where there is no health value).

Contaminant levels below the specified criteria may be inferred as safe. Levels that exceed criteria do not imply that the pore water is hazardous but signal that further investigation and assessment of the risk to human health and impacts to the water column during in-river construction activities from the contamination should be considered.

⁷ The Australian DWG health-related guideline value is the concentration or measure of water quality that, on present knowledge, does not pose any significant risk to the health of the person consuming the water over a lifetime of consumption (ANZECC & ARMCANZ 2000).

⁸ The Australian DWG aesthetic guideline value is the concentration or measure of water quality characteristic associated with good water quality (ANZECC & ARMCANZ 2000).

9.0 SURFACE WATER SAMPLING

9.1 Sampling Objectives

The objectives of the surface water sampling program were to assess the baseline conditions of surface water within the site.

9.2 Selection of Sampling Locations

Surface water samples were collected from a total of six locations; four locations within the Stage 1–Stage 3 assessment boundaries, inclusive of two reference locations (one upstream (T01) and one downstream (T02) of the assessment boundaries), of which one is a long-term Department of Water (DoW) monitoring location (T02). Surface water sampling locations (T01–02 and T25–28) are presented in Figure 4. Surface locations within Stage 1 were utilised to obtain a better spatial understanding of surface water concentrations across the project area.

Sampling locations were selected to assess conditions upstream (T01), spatially within the stage assessment boundaries (T25–T28) and downstream of the site (T02). The sampling locations within the stage assessment boundaries were also situated to determine whether contamination is entering the near shore environment from the adjacent site uses (historical and current). The locations were spread across the site, with location T26 situated downstream of the outlet of the Claisebrook drain.

Table 2 presents the surface water analytical suite.

9.3 Methodology

Water samples were recovered using a submersible stainless steel pump and a 3 m length of teflon or teflon-lined tubing, from a depth of 0.2 m below water level. Between sampling locations the sampling pump and tubing were cleaned with an oxygen based phosphate free detergent solution and rinsed with deionised water. Before collecting each new sample the pump was run to flush site water through the tubing and then collection containers were rinsed and filled with the sample water. The water was collected, unfiltered, into individual appropriate sampling containers. Prior to sampling at each site, physico-chemical parameters were collected (direct in situ readings) from the undisturbed water column using a calibrated multi-parameter water quality instrument. Samples were collected from the front of the boat to avoid cross-contamination from any outboard motor emissions. The surface water stabilisation data was recorded on the surface water sampling logs presented in Appendix 5. Instrument calibration logs are presented in Appendix 4.

9.4 Assessment Guidelines

Surface water analysis results were compared with criteria presented in the DEC (2010) *Assessment Levels for Soil, Sediment and Water* and summarised as follows:

- Freshwater Guidelines (FWG)
- Marine Ecosystem Protection Guidelines (MEPG)
- Non-potable Drinking Water Guidelines (DNP).

In cases where no guideline is reported, a guideline was sourced from the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC/ARMCANZ 2000).

The assessment of surface water was based on the beneficial use and management objectives of the surface water. The beneficial use of surface water was identified as intake by marine/estuarine fauna and flora. FWG and MEPG guidelines define assessment values for consideration of ecological risk in surface water bodies.

FWG define values for the assessment of ecological risk in surface water bodies such as wetlands or creeks. The surface water is being sampled from a sensitive ecosystem, the Swan River.

DoH has developed generic assessment criteria (DoH 2006) to protect the public who may be using, or may be exposed to, surface water containing chemical residues in a non-potable setting, i.e. recreational contact. The DNP are generally a factor of 10 times the corresponding Australia DWG Health value⁹ (or aesthetic value¹⁰ where there is no health value).

Contaminant levels below the referenced criteria may be inferred as safe. Levels that exceed criteria do not imply that the surface water is hazardous but signal that further investigation and assessment of the risk to human health and impacts to the water column during in-river construction activities from the contamination should be considered.

⁹ The Australian DWG health-related guideline value is the concentration or measure of water quality that, on present knowledge, does not pose any significant risk to the health of the person consuming the water over a lifetime of consumption (ANZECC & ARMCANZ 2000).

¹⁰ The Australian DWG aesthetic guideline value is the concentration or measure of water quality characteristic associated with good water quality (ANZECC & ARMCANZ 2000).

10.0 HEALTH AND SAFETY

RPS is responsible for providing a safe working environment. A Job Hazard Analysis (JHA) and Health, Safety and Environment Plan (HSEP) were prepared for the different aspects of work conducted at the site. Appropriate personal protection equipment (PPE) was worn by all RPS personnel and subcontractors while on site. The JSA and HSEP were reviewed by an RPS Health and Safety Risk Consultant (formerly Safety and Risk Professionals (SARP)). It has been confirmed with WorkSafe that there is no requirement to submit HSEPs to WorkSafe.

Continuous attention was given to any safety issues that arise while on site, any concerns were addressed as soon as the risk is identified. Tool-box meetings were scheduled every morning before commencement of investigation activities, this aided in ensuring that all personnel and subcontractors were aware of safety practices on a day to day basis.

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11.0 SEDIMENT RESULTS

11.1 Sediment Profile Description

Sediment sampling logs are presented in Appendix 2, with site photographs being presented in the Plates section at the rear of the report.

The sediment profile across the site is consistent, being sandy clays to medium clays, of black/dark grey in colour, containing trace shell matter.

11.2 Particle Distribution

The results of the particle size distribution analysis are presented in Table 3. A summary of the results is presented below.

The soils are classified predominantly as clay and silt being smaller than 60 µm, with the mean median particle size being 0.014 mm (14 µm). Minimal sediment was identified as >2 mm. This indicates that the material is very fine and likely to be easily disturbed during natural tidal movements of the river and flooding events. This conclusion is supported by the turbid nature of the water column.

11.3 Contamination Results

11.3.1 Overview

The results of the laboratory sediment analysis are presented in Tables 4 to 10, with locations of exceedances presented on Figures 5 and 6. Laboratory reporting is presented in Appendix 6. Quality control and assurance results and assessment is presented in Appendix 7.

A total of 28 samples were selected for analysis of trace metals, OC/OP pesticides, PAHs, phenols, PCBs, TPH and BTEX, cyanide, total organic carbon (TOC) and asbestos fibres, with specific samples analysed for nutrients, volatile organic compounds (VOCs) including monocyclic aromatic hydrocarbons (MAHs), carbamates and acid herbicides, results are summarised below:

Based upon the 95% UCL for TOC (3.03%) organic, PAHs, PCBs and OC/OP pesticides assessment levels have been increased by a factor of 3.03, as outlined within DEC (2010)¹¹.

¹¹ The ISQG values within the guidelines are normalised to 1% organic carbon; “the guideline value should be increased accordingly, since additional carbon binding sites reduce the contaminant bioavailability (DEC 2010)”.

11.3.2 Metals

The majority of metals were below relevant ISQG guidelines with the exception of copper, lead, mercury, nickel and zinc.

Concentrations of aluminium and iron dominate the metals present within the sediments, with means of 14,663 and 37,639 mg/kg respectively. No significant variation is observed between the average of the background sampling locations (T01, T02, T09 and T24) and the remainder of the site for either metal.

Copper exceeded the ISQG-Low (65 mg/kg) in the majority of samples, with a maximum concentration of 167 mg/kg. The mean, median and 95% UCL all exceed the ISQG-Low. The mean concentration within the Stage 3 area (92 mg/kg) is greater than the mean background concentration (54 mg/kg), with the highest concentrations observed in the western portion of the stage (T14–T16), in the vicinity of the outfall on the Claisebrook drain.

Concentrations of copper at depth were typically in line with overlying samples with the exception of T15, where the deeper sample (T15C02) was approximately double the surficial sample (T15C01).

Lead exceeded the ISQG-Low (50 mg/kg) in the majority of samples, including background samples, with two locations (T15 and T17) also exceeding the ISQG-High (220 mg/kg), with a maximum concentration of 228 mg/kg (T17C01). The mean, median and 95%UCL all exceed the ISQG-Low. As with copper the mean concentration with the Stage 3 area (120 mg/kg) is greater than the background mean (67 mg/kg), with the higher concentrations observed across the whole stage area.

Concentrations of lead at depth were typically in line with overlying samples with the exception of T15, where the deeper sample (T15C02, 233 mg/kg) was approximately 1.5 times the surficial sample (T15C01, 162 mg/kg).

Mercury exceeded the ISQG-Low (0.15 mg/kg) in four samples with a maximum concentration of 0.2 mg/kg (T01C01, T02C01, T10C01 and T11C01). All other samples were below the ISQG-Low. The mean, median and 95% UCL all comply with the ISQG-Low. Concentrations are relatively homogenous across the whole investigation area, with no significant difference between background samples and those within the stage boundary.

Nickel exceeded the ISQG-Low (21 mg/kg) within one background sample (T01C01, 24 mg/kg), with all other samples below the ISQG-Low.

Zinc exceeds the ISQG-Low (200 mg/kg) in 24 of the 28 samples, with 12 (T14C01-T14C03, T15C01, T15C02, T16C01, T17C01, T17C02, T18C02, T18C03, T19C01 and T23C01) of these samples also exceeding the ISQG-High (410 mg/kg), with a maximum

of 628 mg/kg (T15C02). The mean, median and 95% UCL all exceed the ISQG-Low. As with other metals the mean concentration within the Stage 3 area (397 mg/kg) is elevated above the background mean (210 mg/kg) however both still exceed the ISQG-Low. The ISQG-High exceedances are observed throughout the Stage 3 area.

Concentrations of zinc at depth were typically in line with overlying samples with the exception of T14, T15 and T18, where the deeper samples were greater than the surficial samples. At T14, the surficial sample (T14C01) reported a concentration of 517 mg/kg, with the underlying sampling reporting a concentration of 600 mg/kg. At T15, the surficial sample (T15C01) reported a concentration of 438 mg/kg, with the underlying sampling reporting a concentration of 628 mg/kg. At T18, the surficial sample (T18C01) reported a concentration of 365 mg/kg, with the underlying sampling reporting a concentration of 448 mg/kg.

11.3.3 Polycyclic Aromatic Hydrocarbons

A variety of PAHs were exceeded, with the majority of exceedances concentrated in the western portion of the stage, again around the outfall of the Claisebrook drain. With the exception of one location (T24C01), no exceedances were observed within background samples, indicating that concentrations within the stage boundary are elevated above background levels.

Acenaphthene exceeded the ISQG-Low (0.05 mg/kg) in nine samples with a maximum concentration of 0.244 mg/kg (T16C01), with all other samples below the ISQG-Low. The mean and 95%UCL exceed the ISQG-Low with the median equivalent to the ISQG-Low.

Anthracene exceeded the ISQG-Low (0.26 mg/kg) in five samples with a maximum concentration of 1 mg/kg (T14C01). All other samples were below the ISQG-Low. The mean, median and 95%UCL all comply with the ISQG-Low.

Benzo(α)anthracene exceeded the ISQG-Low (0.79 mg/kg) in four samples, with a maximum concentration of 1.67 mg/kg (T14C01). All other samples were below the ISQG-Low. The mean, median and 95%UCL all comply with the ISQG-Low.

Benzo(α)pyrene exceeded the ISQG-Low (1.30 mg/kg) in four samples, with a maximum concentration of 3.82 mg/kg (T14C01). All other samples were below the ISQG-Low. The mean, median and 95%UCL all comply with the ISQG-Low.

A total of three samples exceeded the ISQG-Low (1.16 mg/kg) for chrysene, a maximum concentration of 2.08 mg/kg (T14C01). All other samples were below the ISQG-Low. The mean, median and 95%UCL all comply with the ISQG-Low.

A total of three samples exceeded the ISQG-Low (1.82 mg/kg) for fluoranthene, with a maximum concentration of 3.08 mg/kg (T16C01). All other samples complied with the ISQG-Low. The mean, median and 95%UCL all comply with the ISQG-Low.

A total of 13 samples exceeded the ISQG-Low (0.06 mg/kg) for fluorene, with a maximum concentration of 0.411 mg/kg (T06C01). All other samples complied with the ISQG-Low. The mean and 95%UCL exceed the ISQG-Low with the median equivalent to the ISQG-Low.

Naphthalene concentrations complied with the ISQG-Low (0.49 mg/kg) in all samples except three samples with a maximum of 0.664 mg/kg (T14C01). The mean, median and 95%UCL all comply with the ISQG-Low.

Phenanthrene exceeded the ISQG-Low (0.73 mg/kg) in two samples, with a maximum concentration of 1.16 mg/kg (T14C01). All other samples were below the ISQG-Low. The mean, median and 95%UCL all comply with the ISQG-Low.

Four samples exceeded the ISQG-Low (2.02 mg/kg) for pyrene, with the maximum concentration observed being 5.81 mg/kg (T16C01). All other samples were below the ISQG-Low. The mean, median and 95%UCL all comply with the ISQG-Low.

Four samples exceeded the Low Molecular Weight PAHs¹² (LMW PAHs) ISQG-Low (1.7 mg/kg), with a maximum concentration of 4.22 mg/kg (T14C01). All other samples complied with the ISQG-Low. The mean, median and 95%UCL all comply with the ISQG-Low.

Four samples exceeded the High Molecular Weight PAHs¹³ (HMW PAHs) ISQG-Low (5.2 mg/kg), with a maximum concentration of 16 mg/kg (T14C01). All other samples complied with the ISQG-Low. The mean, median and 95%UCL all comply with the ISQG-Low.

HMW PAHs exceed LMW PAHs in all samples by between 1.6 and 5.3-fold, indicating that the majority of PAHs present within the sediments are HMW PAHs.

Four samples exceeded the Total PAHs ISQG-Low (12 mg/kg), with a maximum concentration of 33.6 mg/kg (T14C01). All other samples complied with the ISQG-Low. The mean, median and 95%UCL all comply with the ISQG-Low.

All other samples complied with the relevant ISQG-Low levels. For PAHs where no guidelines exist, concentrations within the Stage 3 were elevated above the background samples.

¹² LMW PAHs are the sum of acenaphthalene, anthracene, fluorine, 2-methylnaphthalene, naphthalene and phenanthrene.

¹³ HMW PAHs are the sum of benzo(α)anthracene, benzo(α)pyrene, chrysene, dibenzo(α,η)anthracene, fluoranthene and pyrene.

11.3.4 Total Petroleum Hydrocarbons and BTEX

No sediment guidelines exist for TPH or BTEX.

All BTEX results were below the relevant LORs in all samples.

TPH was identified in the all fractions from C₁₀ up to C₃₆, with the predominant fractions being C₁₅₋₂₈ and C₂₉₋₃₆, which is reflective of the higher HMW PAHs observed on site, compared to LMW PAHs. The mean concentration of C₁₀₋₃₆ across the site was 318 mg/kg, with a maximum concentration of 957 mg/kg (T16C01). The mean concentration is in line with the mean background concentration.

Speciation of the aromatic and aliphatic fraction has not been completed as due to the high concentrations of PAHs observed, the aromatic fraction is anticipated to form a significant portion of the TPH concentrations.

11.3.5 Pesticides

The LORs for the various OC/OP pesticides were raised for the majority of samples, due matrix effects, and as such the raised LOR for dieldrin, endrin, and lindane are above relevant guidelines. This is unavoidable and is a reflection of the sample matrix (i.e. natural organic material, high moisture content within the sample) and the very low guideline values. The LORs for dieldrin and endrin are marginally above the sediment guideline, however neither pesticide was observed in any sample above the LOR.

Elevated concentrations are predominantly located in the western portion of the site, and as with the PAHs and metals, south of the Claisebrook inlet and at and to the south of the Claisebrook drain outfall.

- DDD exceeded the ISQG-Low (0.0061 mg/kg) in six samples, with a maximum concentration of 0.0118 mg/kg (T14C01). All other samples were below the ISQG-Low. The mean, median and 95%UCL comply with the ISQG-Low.
- DDE exceeded the ISQG-Low (0.067 mg/kg) in nine samples, with a maximum concentration of 0.026 mg/kg (T14C01). All other samples were below the ISQG-Low. The mean and median both comply with the ISQG-Low; however the 95%UCL exceeds with the ISQG-Low.
- No other pesticides were detected above relevant LORs.

11.3.6 Other Organic Compounds

All phenols, PCBs, carbamates, acid herbicides and VOCs were below relevant LORs, as such all PCBs were below the ISQG-Low (0.023 mg/kg). No guidelines exist for phenols, carbamates, acid herbicides and VOCs.

11.3.7 Cyanide

Nine samples were elevated above the LOR, with a maximum concentration of 2 mg/kg (T11C01, T13C01 and T18C01). All remaining samples were below the LOR. No guidelines exist for cyanide in WA however concentrations within the stage area were in line with background concentrations.

11.3.8 Pathogens

All pathogens reported concentrations below relevant limits of reporting.

11.3.9 Nutrients

No guidelines for nutrients (phosphorus and or nitrogen) exist in WA. Concentrations for nitrogen and phosphorus however were consistent between background and site samples.

Phosphorus is predominantly in total forms (i.e. non-reactive forms) and as such bound up with the sediment.

Nitrogen is also predominantly bound to sediments and in organic forms (i.e. kjeldahl nitrogen). Ammonia is the dominant inorganic form of nitrogen however inorganic concentrations are significantly below organic forms of nitrogen.

11.3.10 Asbestos

Asbestos fibres, amosite, chrysotile and crocidolite, were detected in six of the 31 samples analysed (19%), including duplicates and triplicates, and at four of the 24 locations sampled (17%). Fibres were encountered within three surface samples (0–0.2 mbgl and 0.0–0.5 mbgl) and three underlying samples, 0.2–0.5 and 0.5–1.0 mbgl.

Samples containing asbestos were located in the western portion of the site and around the outfall of the Claisebrook drain (i.e. T10, T14 and T15). Asbestos was also detected downstream of the site (T24).

11.3.11 Swan River Elutriate Analysis

Table 11 and 12 presents the elutriate analysis results for the sediments. A total of four samples were submitted for elutriate analysis.

Samples were leached using the USEPA standard elutriate as outlined in the *National Assessment Guidelines for Dredging* (Australian Government 2009) with Swan River water collected in the vicinity of the proposed dredge channel, being used as the leachate solution.

11.3.11.1 Metals

With the exception of arsenic and boron, all metals were reported below relevant guidelines, the majority below relevant LORs. With the exception of aluminium, arsenic, iron, manganese and molybdenum the majority of metals showed no increase above background Swan River water. The aforementioned metals, except arsenic, were however all below relevant guidelines.

Arsenic exceeded the FWG (0.013 mg/L) in two of the four samples with a maximum concentration of 0.0225 mg/L (T15A). Arsenic within the Swan River water sample used in the elutriate testing (Swan River) complied with the FWG (0.013 mg/L) with a concentration of 0.01 mg/L. An increase in concentration was observed within all elutriate extracts, ranging between 0.005 to 0.0215 mg/L.

Boron exceeded the FWG (0.37 mg/L) within all elutriate extracts, with a maximum of 3.12 mg/L (T14A). Boron within the Swan River water, 2.85 mg/L, also exceeded the FWG. No significant increase above background levels was observed.

11.3.11.2 Phenols

All phenols were reported at below limits of reporting within the elutriates and Swan River water.

11.3.12 **Contamination Summary**

Elevated metals (copper, lead, mercury and zinc), PAHs (various), and OC pesticides (DDD and DDE) reported concentrations above ISQG guidelines. Asbestos fibres were also detected in several samples. The majority of exceedances were reported in the western portion of the site, below the Claisebrook inlet and in the vicinity of the outfall from the Claisebrook drain. Elutriate results for metals did not indicate a significant release of metals, with the exception of arsenic, in the water column.

11.4 **Acid Sulfate Soils**

11.4.1 **Confirmatory Laboratory Assessment – Chromium Reducible Sulfur (S_{CR})**

Conclusions drawn from the ASS laboratory results (Table I3) are:

- All four samples tested were found to have net acidity values¹⁴ above the DEC ASS management action criteria of 0.03%S.

¹⁴ Excluding acid neutralising capacity (ANC)

- The highest net acidity value¹⁴ recorded was 1.06%S and the highest potential acidity (CRS) value was 1.06%S.
- A total of three of the four (75%) samples show elevated TPA results, 305 to 963 mol H⁺/tonne. Significantly, the TPA result in the majority of samples is lower than the concentrations of pyritic sulfur (measured as S_{CR}) indicating that the sediments contain shell grit and other acid-buffering material.
- All TAA values were below the limit of reporting and as such below the DEC management criteria (18 mol H⁺/tonne). This is due to the ANC present in the samples and also potentially due to the saturated state of the sediment and the high alkalinity present in the pore water and Swan River water.
- All investigation sites had positive ASS test results; above the DEC action criterion of 0.03%S.
- The calculated mean net acidity¹⁵ across all samples is 0.93%S and the mean + standard deviation is equivalent to 1.03%S (excluding ANC).
- All samples were found to contain levels of ANC. The highest ANC value recorded was 1.91%S; the mean across the samples containing ANC was 1.09%S. In the majority cases the amount of ANC present did not buffer the pyritic acidity within the samples.
- The calculated mean net acidity (including ANC) across all samples is 0.38%S and the mean + standard deviation is equivalent to 0.51%S.

Table E below provides a summary of the analytical data obtained.

Table E: ASS Results Summary

Analyte	Unit	DEC Management Criteria (Treatment)	Average Result
Chromium Reducible Sulfur (CRS)	mol H ⁺ /tonne	>18	583
Titratable Actual Acidity (TAA)	mol H ⁺ /tonne	>18	<2
Titratable Peroxide Acidity (TPA)	mol H ⁺ /tonne	>18	399
pH _{KCl}	pH	<6.5	8.4
pH _{Ox}	pH	<6.0	4.1
Acid Neutralising Capacity (ANC)	mol H ⁺ /tonne	Not Defined	677

The data supports a conclusion that ASS is present in the sediments.

¹⁵ Excluding ANC

11.4.2 Acid Volatile Sulfur

Acid volatile sulfur (AVS), in the form of FeS, was found above the LOR (0.001%S) in all of the samples; with a maximum concentration of 0.02%S (T20A), which equates to 200 mg/kg. The average for AVS was 0.015%S (150 mg/kg).

These results combined with the moisture content (mean 58%) and the organic matter (mean 2.89% and maximum of 4.7%); indicate that Monosulfidic Black Oozes (MBOs) are not present within the site. MBOs typically contain moisture concentrations >70%, organic carbon concentrations of 10% and elevated monosulfides (up to 27%) (DEC 2010).

11.4.3 ASS Summary

All sediments are classified PASS. Acidity, both inorganic and organic forms, were detected across the area with inorganic (i.e. pyritic acidic) being the dominate form. MBOs were not identified in the sediments.

There is a significant amount of ANC in the sediments, albeit the larger-proportion of the ANC is likely not kinetically available, as it is bound in shell fragments. The kinetics for dissolution of this larger shell grit material is likely to be too slow to neutralise acidity generated from oxidation of pyritic sulfur. This is not significant, however, as material is unlikely to be dredged and or removed from the river, as such the potential for oxidation of the sediments, and thereby release of acid, is minimal. As such no specific management of sediments in relation to ASS is required on the assumption that material remains within the river environment.

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12.0 PORE WATER RESULTS

12.1 Field Observations

Table F below presents an overview of the pore water field parameter results. Pore water was sampled on 13 and 18 December 2012. The appearance of the waters was brown and turbid to very turbid.

Table F: Pore Water Field Parameters

Parameter	Minimum Reading	Maximum Reading
pH (pH units)	7.59 (T31P)	7.89 (T29P)
Electrical Conductivity ($\mu\text{S}/\text{cm}$)	32,500 (T31P)	33,700 (T07P)
Redox Potential (mV)	-177 (T32P)	-119 (T07P)
Dissolved Oxygen (ppm)	2.34 (T07P)	3.68 (T29P)
Temperature ($^{\circ}\text{C}$)	23.4 (T32P)	25.4 (T08P)

The pore water sampling logs are included in Appendix 4.

12.2 Analytical Results

The results of the laboratory pore water analysis are presented in Tables 15 to 19, with exceedances presented on Figures 7 and 8. Laboratory documentation is presented in Appendix 8, with quality control and assurance results and assessment is presented in Appendix 7 and are summarised as follows

12.2.1 Total Metals and Metalloids

Aluminium exceeded the FWG (0.055 mg/L) within all samples with the majority also exceeding the DoH (2 mg/L) criteria, with a maximum concentration of 44.8 mg/L (T08P).

Arsenic exceeded the FWG (0.013 mg/L) within one sample (T08P) with a maximum concentration of 0.0192 mg/L (T08P).

Boron concentrations exceeded the FWG (0.37 mg/L) at all locations; ranging between 3.08 mg/L (T29P) and 3.37 mg/L (T07P).

Cadmium exceeded the FWG (0.0002 mg/L) within two samples (T08P and T31P (0.0004 mg/L)) and also the MEPG at T08P, with a maximum concentration of 0.0024 mg/L.

Chromium exceeds the hexavalent chromium (CrVI) FWG (0.001 mg/L) in all samples with the majority also exceeding the CrVI MEPG (0.0044 mg/L), a range of 0.0012 mg/L (T30P) to 0.1 mg/L (T08P). Three of the samples (T07P, T08P and T31P) exceed the trivalent chromium (CrIII) MEPG (0.027 mg/L).

All CrVI values are below relevant LORs however the LOR is above relevant guidelines. This is unavoidable due to the saline matrix of the samples. This however has not effected the overall assessment as no source of CrVI has been identified and based upon the physical parameters all Cr is expected to be in the form of CrIII.

Copper exceeded the MEPG and FWG (0.0013 and 0.0014 mg/L, respectively) within all samples, with a maximum concentration of 0.248 mg/L (T08P).

Iron exceeded the FWG (0.3 mg/L) with all samples and the MEPG (1.0 mg/L) and DoH (3 mg/L) in the majority of samples, with a range of 0.81 mg/L (T30P) to 71 mg/L (T08P).

Lead exceeded the FWG and MEPG (0.0034 and 0.0044 mg/L, respectively) in all samples, with two samples additional exceeding the DoH (0.1 mg/L) guideline. The concentrations ranged between 0.0058 mg/L (T30P) and 0.147 mg/L (T08P).

Nickel exceeded the MEPG (0.007 mg/L) in four samples (T07P, T08P, T31P and T32P), with three (T07P, T08P and T31P) also exceeding the FWG (0.011 mg/L). The concentrations ranged between 0.0015 mg/L (T30P) and 0.044 mg/L (T08P).

Zinc concentrations exceeded the FWG and MEPG (0.008 and 0.015 mg/L, respectively) at all locations, with concentrations ranging between 0.018 mg/L (T30P) and 1.46 mg/L (T08P).

All other metal concentrations were less than their respective guideline values, with the majority below relevant LORs.

Guideline values for metals have not been adjusted with hardness as per ANZECC 2000, as no significant contamination was identified.

12.2.2 Others Parameters

All samples reported cyanide results below the LOR (0.004 mg/L) and as such below all relevant guidelines.

All samples reported sulfide concentrations below LOR (0.1 mg/L).

Volatile acids (as acetic acids) were observed above the LOR in both samples submitted for analysis, with concentrations of 482 mg/L (T08P) and 90 mg/L (T30P). No guidelines exist for volatile, however concentrations are above the mean surface water concentration (71 mg/L).

12.2.3 Nutrients¹⁶

Total nitrogen varies between the locations with concentrations from 1.2 mg/L (T30P) to 7.5 mg/L (T07P); with all samples exceeding the MEPG (0.75 mg/L) and the majority exceeding the FWG (1.2 mg/L).

Nitrogen is typically in inorganic forms (ammonia and nitrous oxides); with ammonia the dominant inorganic form. This is consistent with the negative redox values indicating anoxic conditions.

Ammonia concentrations exceed the FWG and MEPG (0.08 and 0.04 mg/L, respectively) in all of the locations; with a maximum concentration of 3.82 mg/L (T31P).

Total phosphorus concentrations range from 0.18 to 1.08 mg/L, which exceeds the FWG and MEPG (0.065 and 0.03 mg/L, respectively). Reactive phosphorus concentrations are high (majority are 50% or greater of the total phosphorus concentrations), except T08P; with exceedances of the MEPG and FWG (0.005 and 0.04 mg/L, respectively) in all samples. The maximum reactive phosphorus concentration observed was 0.98 mg/L (T07P).

12.2.4 Polycyclic Aromatic Hydrocarbons

The majority of PAHs were identified above relevant LORs however guidelines only exist for benzo(α)pyrene and naphthalene. No PAHs were observed within surface waters (Section 13.2.4) and as such for PAHs reported above the LORs with no guidelines, these are above background concentrations.

Naphthalene was identified in the majority of samples however all reported concentrations below the FWG (0.016 mg/L), with concentrations ranging between <0.00002 mg/L (T08P) and 0.00051 mg/L (T30P).

Benzo(α)pyrene was identified in the majority of samples, with four exceeding the DoH (0.0001 mg/L) criteria, with concentrations ranging between 0.000144 mg/L (T31P) and 0.000241 mg/L (T07P).

12.2.5 Total Petroleum Hydrocarbons, MAHs and BTEX

All TPH, MAH and BTEX were below relative LORs, with the exception of TPH in three samples, and as such below relative guidelines. The C₁₀-C₃₆ TPH concentrations ranged between <0.05 mg/L (T30P to T32P) and 0.32 mg/L (T07P), with all hydrocarbons above LORs in the C₂₉-C₃₆ fraction.

¹⁶ Nutrient guideline values adopted here refer to Table 3.3.6 (ANZECC 2000), and apply to “lowland river” (FWG) and “estuary” (MEPG) ecosystems for south-west Australia. The trigger values are used to assess risk of adverse effects due to nutrients for slightly-disturbed ecosystems.

12.2.6 Other Organic Compounds

All pesticides, herbicides, PCBs, VOCs and phenols concentrations were less than their respective limits of reporting, with the exception of heptachlor.

Heptachlor in two samples (T31P and T32P) which both exceed the FWG (0.00001 mg/L), with concentrations of 0.000011 mg/L (T31P) and 0.000017 mg/L (T32P).

12.2.7 Microbiological

All pathogens (enterococci and thermotolerant coliforms) were below primary and secondary contact criteria (reference) for all samples, with the majority below the relevant LORs. Concentrations within pore water are below the mean surface water concentrations.

12.3 Summary of Pore Water Contamination Status

The contamination status of the pore water at the site is summarised in the Table G below. Further discussion is provided in Section 15.2.3.

Table G: Pore Water Contamination Exceedance Summary

Sampling Location (where Exceeded Guideline)	Guideline (mg/L)	Range of Results (mg/L)	Contaminant
T07P, T08P, T29P–T32P	FWG (0.055) DoH (2)	0.518–44.8	Aluminium
T08P	FWG (0.013)	0.0192	Arsenic
T07P, T08P, T29P–T32P	FWG (0.37)	3.08–3.37	Boron
T08P, T31P	FWG (0.0002) MEPG (0.0007)	0.0004–0.0024	Cadmium
T07P, T08P, T29P–T32P	FWG (0.001) MEPG (0.0044)	0.0012–0.1	Chromium (note: CrVI guideline)
T07P, T08P, T29P–T32P	FWG (0.0013) MEPG (0.0014)	0.004–0.248	Copper
T07P, T08P, T29P–T32P	MEPG (1) FWG (0.3) DoH (3)	0.81–71	Iron
T07P, T08P, T29P–T32P	MEPG (0.0044) FWG (0.0034)	0.0058–0.147	Lead
T07P, T08P, T31P, T32P	MEPG (0.007) FWG (0.011)	0.0092–0.044	Nickel
T07P, T08P, T29P–T32P	FWG (0.008) MEPG (0.015)	0.018–1.46	Zinc
T07P, T08P, T29P–T32P	MEPG (0.04) FWG (0.08)	0.46–3.82	Ammonia as N
T07P, T08P, T29P–T32P	FWG (1.20) MEPG (0.75)	1.2–7.5	Total Nitrogen
T07P, T08P, T29P–T32P	MEPG (0.03) FWG (0.065)	0.18–1.08	Total Phosphorous
T07P, T08P, T29P–T32P	MEPG (0.005) FWG (0.04)	0.07–0.44	Reactive Phosphorous
T31–P, T32–P	FWG (0.00001)	0.000011–0.000017	Heptachlor
T07P, T08P, T31P, T32P	DoH (0.0001)	0.000125–0.000241	Benzo(α)pyrene

13.0 SURFACE WATER RESULTS

13.1 Field Observations

Table H below presents an overview of the surface water field parameter results. Surface water was sampled on 13 January 2012. The appearance of the water was moderately turbid and brown.

Table H: Surface Water Field Parameters

Parameter	Minimum Reading	Maximum Reading
pH (pH units)	7.49 (T02W)	7.82 (T28W)
Electrical Conductivity ($\mu\text{S}/\text{cm}$)	32,900 (T01W)	34,100 (T02W)
Redox Potential (mV)	122 (T27W)	190 (T02W)
Dissolved Oxygen (ppm)	4.55 (T01W)	5.2 (T28W)
Temperature ($^{\circ}\text{C}$)	24.5 (T01W)	25 (T02W)

The surface water sampling logs are included in Appendix 5.

Samples were due to be sampled within the field however an error occurred during sampling and this was not completed. As such the unfiltered samples present a worst case scenario of metals and nutrients within the water column. There is potentially a volume of very fine sediment ($< 2 \mu\text{m}$) has been collected during sampling, which represents the material that is easily suspended during natural flows of the river. Other larger sediment material is not anticipated to be easily suspended during natural flows and therefore not anticipated to be present within the top 0.2 m of the water column given the bathymetry of the river and sampling locations. The samples were then acidified in the laboratory, for metals, and as such representative of total concentrations.

13.2 Analytical Results

The results of the laboratory surface water analysis are presented in Tables 15 to 19, with exceedances presented on Figures 7 and 8. Laboratory documentation is presented in Appendix 8, with quality control and assurance information presented in Appendix 7 and is summarised as follows:

13.2.1 Total Metals and Metalloids

Aluminium exceeded the FWG (0.055 mg/L) in all samples, with concentrations ranging between 0.088 mg/L (T28W) and 0.286 mg/L (T26W).

Boron concentrations exceeded the FWG (0.37 mg/L) in all samples; concentrations ranging between 2.92 mg/L (T25W) and 3.18 mg/L (T28W).

Copper exceeded the MEPG and FWG (0.0013 and 0.0014 mg/L, respectively) within all samples, with concentrations ranging between 0.003 mg/L (T02W) and 0.01 mg/L (T25W and T26W).

Iron exceeded the FWG (0.3 mg/L) at two locations, with concentrations of 0.525 mg/L (T26W) and 0.317 mg/L (T27W).

Lead exceeded the FWG (0.0034 mg/L) in one sample with a maximum concentration of 0.004 mg/L (T01W).

Zinc concentrations exceeded the FWG (0.008 mg/L) in four of the six locations, with one also exceeding the MEPG value (0.015 mg/L), with concentrations ranging between 0.007 mg/L (T02W) and 0.107 mg/L (T01W).

All other metal concentrations were less than their respective guideline values, with the majority below relevant LORs.

Guideline values for metals have not been adjusted with hardness as per ANZECC 2000, as no significant contamination was identified.

13.2.2 Other Parameters

All samples reported cyanide results below the LOR (0.004 mg/L) and as such below all relevant guidelines.

All samples reported sulfide concentrations below LOR (0.1 mg/L).

Volatile acids (as acetic acids) were observed above the LOR in all samples, with concentrations ranging between 68 mg/L (T25W and T27W) and 83 mg/L (T26W). No guidelines exist for volatile, however concentrations are relatively consistent across the site, with a mean of 71 mg/L.

13.2.3 Nutrients¹⁷

Total nitrogen varies between the locations with concentrations from 0.6 mg/L (T02W) to 1.0 mg/L (T25W); with the majority of samples exceeding the MEPG (0.75 mg/L).

Nitrogen is typically in organic forms (i.e. kjeldahl nitrogen). Ammonia is the dominant inorganic form.

¹⁷ Nutrient guideline values adopted here refer to Table 3.3.6 (ANZECC 2000), and apply to “lowland river” (FWG) and “estuary” (MEPG) ecosystems for south-west Australia. The trigger values are used to assess risk of adverse effects due to nutrients for slightly-disturbed ecosystems.

Ammonia concentrations exceed the FWG and MEPG (0.08 and 0.04 mg/L, respectively) at all locations; with concentrations ranging between 0.08 mg/L (T25W and T27W) and 0.11 mg/L (T26W).

Total phosphorus concentrations range from 0.04 to 0.23 mg/L, which exceeds the MEPG (0.03 mg/L) and FWG (0.065 mg/L). Reactive phosphorus concentrations are low (majority close to the LOR; with exceedances of the MEPG (0.005 mg/L) only observed in all bores, with a range of concentrations of 0.01 mg/L (T02W, T26W and T28W) and 0.03 mg/L (T25W).

13.2.4 Polycyclic Aromatic Hydrocarbons

PAHs within all samples were below the LOR and therefore below relevant guidelines.

13.2.5 Total Petroleum Hydrocarbons, MAHs and BTEX

All TPH, MAHs and BTEX were below relative LORs and as such below relative guidelines, with the exception of C₁₀-C₁₄ TPH for T01W which reported a concentration of 0.08 mg/L.

13.2.6 Pesticides, Herbicides PCBS, VOCs and Phenols

All pesticides, herbicides, PCBs, VOCs and phenols concentrations were less than their respective limits of reporting, with the exception of methiocarb in T28W (0.0002 mg/L). No guidelines exist for methiocarb.

13.2.7 Microbiological

Enterococci exceeds the primary contact guideline (35 CFU/100 mL) at T01W, with a concentration of 38 CFU/100 mL. Enterococci concentrations are relatively consistent across the site and the mean concentration below the primary contact guideline. Thermotolerant coliforms were low at three locations and elevated at three locations. No discernible trend can be observed in these results though. All thermotolerant coliform concentrations were below relevant guidelines.

13.3 Summary of Surface Water Contamination Status

The contamination status of the surface water at the site is summarised in the Table I below. Further discussion is provided in Section 15.2.2.

Table I: Surface Water Contamination Exceedance Summary

Sampling Location (where Exceeded Guideline)	Guideline (mg/L)	Range of Results (mg/L)	Contaminant
T01W, T02W, T25W–T28W	FWG (0.055)	0.088–0.286	Aluminium
T01W, T02W, T25W–T28W	FWG (0.37)	2.92–3.18	Boron
T01W, T02W, T25W–T28W	FWG (0.0013) MEPG (0.0014)	0.003–0.010	Copper
T26W, T27W	FWG (0.3)	0.317–0.525	Iron
T01W	FWG (0.0034)	0.004	Lead
T01W, T25W–T27W	FWG (0.008) MEPG (0.015)	0.010–0.107	Zinc
T01W, T02W, T25W–T28W	MEPG (0.04) FWG (0.08)	0.08–0.11	Ammonia as N
T25W–T28W	MEPG (0.75)	0.8–1.0	Total Nitrogen
T01W, T02W, T25W–T28W	MEPG (0.03) FWG (0.065)	0.04–0.23	Total Phosphorous
T01W, T02W, T25W–T28W	MEPG (0.005)	0.01–0.03	Reactive Phosphorous
T1W	Primary Contact (35 CFU/100 mL)	38	Enterococci

14.0 BENTHIC HABITAT

Identifying the presence/absence of flora and fauna vulnerable to increased turbidity, sedimentation (smothering) or other physical disturbances is critical to future environmental management of the rivers ecosystem during construction. To facilitate this, a benthic habitat assessment was conducted in the Swan River between the Windan and Causeway Bridges on 7 January 2013. The investigation involved sampling along a series of ten 100 m transects to determine the extent and nature of the benthic habitat within and adjacent to the proposed development footprint (Figure 9).

The majority of transects were randomly positioned within the assessment area. Two of the ten transects (1 and 6) were manually selected due to the increased potential for primary productivity in these areas. This was based upon a review of aerial photography and bathymetry for the area, prior to the investigation. Digital images (stills) were recorded of the benthos every 10 metres along the 100 m transects using a Sony HDR-XR160 high definition camera attached to an adjustable frame. Images were viewed via an on-board monitor prior to capture.

Review of images of the benthos indicated that the development footprint consists predominantly of featureless unconsolidated sedimentary habitat, with low abundance and diversity of macrobenthic organisms. A brown macroalga (likely *Gracilaria comosa*) was recorded sporadically across all transects in low abundance (Plate 6). Deeper areas of the river (below 1.5 m) generally comprised brown–grey soft, silty clays; whereas shallow regions (0–1.5 m) comprised brown–grey sandy clays with mixed shell grit. Examples of the different benthic habitats recorded across the ten transects are displayed in the Plates section of the report.

Microphytobenthos density or productivity was not assessed during the benthic habitat assessment conducted in January 2013; however, widespread soft sediment habitats were recorded during the survey. Such sediments are likely to constitute microphytobenthos habitat and are widespread both upstream and downstream from the development site. Densities of microphytobenthos are higher in the lower reaches of the Swan River estuary and may be associated with the larger grain size sediments found in the lower reaches of the estuary (Masini and McComb 2001).

The investigation recorded no significant seagrass or macroalgal habitats (which are recognised as key benthic primary producer habitats) across the ten transects; providing evidence that this area is of low significant ecological value. While microphytobenthos may be an important source of primary productivity in the area of the development, suitable habitat for microphytobenthos is widespread both upstream and downstream from the development site, microphytobenthos communities have been demonstrated to recover rapidly from disturbance (Larson and Sundbäck 2012) and the impacts from the proposed activities are considered to be relatively minor. From the investigation conducted, temporary increases in turbidity related to construction works are considered unlikely to have a significant detrimental impact on the benthic ecosystem in the area.

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15.0 SITE CHARACTERISTICS

15.1 Environmental Contamination Identified

The following types of environmental contamination were identified during the course of this investigation over portions of the site:

- sediment concentrations of copper, lead, mercury, nickel, zinc, DDD, DDE, acenaphthene, anthracene, benzo(α)anthracene, benzo(α)pyrene, chrysene, fluoranthene, fluorene, naphthalene, phenanthrene, pyrene, LMW PAHs, HMW PAHs and total PAHs above the ISQG-Low
- sediment concentrations of lead and zinc above the ISQG-High
- sediment elutriate concentrations of arsenic and boron above FWGs
- asbestos fibres in sediments to a depth of 1 mbgl
- ASS – net acidity (mean + standard deviation, 0.46%), excluding ANC, exceeds DEC management criteria, 003%S
- pore water concentrations of aluminium, arsenic, boron, cadmium, chromium, copper, iron, lead, nickel zinc, total nitrogen, total phosphorous, ammonia-N and FRP, heptachlor above the FWGs
- pore water concentrations of cadmium, chromium, copper, iron, lead, nickel, zinc, reactive phosphorus, total phosphorus, ammonia-N and total nitrogen above the MEPG
- pore water aluminium, iron, lead and benzo(α)pyrene concentrations above the DoH guideline (not significant)
- pore water concentrations of contaminants are in line with the Swan River water quality with the exception of the majority of heavy metals, nutrients and PAH concentrations, which are higher
- surface water concentrations of aluminium, boron, copper, iron, lead, zinc, ammonia, total phosphorus above the FWGs
- surface water concentrations of copper, zinc, total nitrogen, ammonia, total and reactive phosphorus above the MEPGs
- enterococci in surface water was above primary contact guidelines.

15.2 Contamination Extent

15.2.1 Sediments

Heavy metal, PAH, and OC pesticide contaminant concentrations were identified above ISQG guidelines in the sediments across the whole investigation area, including both up and down stream background locations (metals and DDE only). Asbestos fibres were identified within sediments, predominantly in the western portion of the site.

Overall the extent of metal contamination was relatively uniform across the site, being widespread, and the site is considered to be representative of typical conditions within the river near-shore area, with respect to metal concentrations.

PAH and OC pesticide were predominantly higher in the western portion of the site, to the south of the Claisebrook inlet and also the outfall of the Claisebrook drain.

15.2.2 Surface Water

Concentrations of total metals were relatively consistent across the site, with the majority anticipated to be contained within suspended particulates in the water column. Nutrient concentrations are also relatively consistent across the site, with the majority again associated with suspended particulates. The surface water was found to have a neutral to slightly alkaline pH level, this would reduce the mobility of metal and nutrient species.

15.2.3 Pore Water

Pore water contaminant concentrations were typically in line with those observed within the Swan River water, with the exception of metals, nutrients and PAHs. These exceptions are likely associated with the high aluminium, iron and organic carbon content reported in the sediments. Other elevated contaminants are deemed to be associated with the sediment loading in the water, which is particularly evident from the results of the elutriate testing (involving standing time and filtering) which exhibits very low metal concentrations, in comparison. Pore water although exhibiting concentrations above guidelines, is unlikely to pose a threat to the benthic ecology in the Swan River. This is due to the majority of contaminants being bound or incorporated within fine particulate matter, which would settle after dispersal (deemed to be minimal), in addition no significant seagrass or macroalgal habitats are present within 1 km of the site and for this reason significant dilution would occur prior to contaminants reaching benthic habitats.

The pore water potentially poses risk to human health, albeit minimal, as contaminants were observed above human health guidelines (DoH), however the potential for exposure to pore water, based upon the current proposed works is minimal.

15.3 Chemical Degradation and Fate of Contaminants

Heavy metals, OC pesticides, PAHs, nutrients, *Enterococci* and asbestos (fibres) identified as exceeding reference guideline values for sediments, surface waters and pore waters. Detailed information pertaining to chemical characteristics, degradation and fate of contaminants is presented in Appendix 9.

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16.0 REVISED CONCEPTUAL SITE MODEL AND RISK ASSESSMENT

16.1 Objectives

The objective of the first stage of a human health risk assessment (HHRA) is to identify the relevant contamination issues, i.e. contaminants, exposure pathways and receptors present and to screen out those exposure pathway–receptor links which do not pose an unacceptable risk. The assessment includes the development of a conceptual site model (CSM), and comparing site data with suitable generic assessment levels (DEC 2006).

The HHRA presented comprises a Tier I assessment and is considered adequate to characterise the risks associated with the contamination and to identify the requirements for management.

The objective of the first stage of an ecological risk assessment (ERA) is to identify the relevant contamination issues, i.e. contaminants, exposure pathways and receptors present and to screen out those contaminant–exposure pathways–receptor linkages which do not pose an unacceptable risk. It involves comparing soil contaminant concentrations for identified contaminants of concern at the site with existing generic ecological investigation levels (DEC 2006).

16.2 Revised Conceptual Site Model

The objective of the Stage 3 assessment was to evaluate the condition of the sediments associated with the area of the proposed pedestrian foot bridge with a view to managing any elevated concentrations of contaminants during construction work to not exacerbate any existing health or ecological risks.

Based on the results of the Stage 3 assessment, there is a potential for sediment to pose a human health risk should the sediment be ingested by users of the river. Although this is outside of the scope of this assessment, regardless, the sediments will require management to minimise any further impact on the river and river users.

The bridge design and bridge construction methodology are yet to be confirmed. However, the contractor will outline their proposed methodology and management measures for mitigation of potential impacts to the state's representative, the relevant regulatory authorities and the Auditor for review and comment prior to implementation.

The revised CSM (Table J) identifies several plausible pathways for sediment, pore water and surface water contaminants. The primary pollutant linkages are summarised as follows.

Table J: Revised Conceptual Site Model Overview

Source		Pathways				Receptors	
1° Source	Potential Contaminants	Release Mechanism	2° Source	2° Release Mechanism	Exposure Routes	Human	Ecological
Contaminated sediment	Pesticides Metals PAHs	Exposure to contaminated Swan River sediments			Direct exposure to sediments	Construction workers Recreational users of the Swan River	Aquatic flora and fauna Surface water Underlying groundwater
					Ingestion of sediments	As above	Aquatic flora and fauna
		Leaching of contaminants into pore waters	Pore water	Release into Swan River	Ingestion of pore water	NA	Aquatic flora and fauna
		Leaching of contaminants into surface water	Surface water	Release into Swan River	Incidental ingestion of surface water	Construction workers Recreational users of the Swan River	Aquatic flora and fauna Terrestrial flora and fauna
					Direct exposure to surface water – dermal contact	Construction workers Recreational users of the Swan River Offsite users	Aquatic flora and fauna Terrestrial flora and fauna
		Vertical migration of contaminants into groundwater	Aquifer	Lateral migration of groundwater	Direct exposure to groundwater Ingestion of irrigation water	Recreation park users Construction workers Off-site groundwater users	Terrestrial flora and fauna
Bioaccumulation of contaminants	Aquatic flora and fauna		Ingestion of contaminated flora and fauna	Consumers of aquatic organisms	Aquatic flora and fauna Terrestrial fauna		

Source		Pathways				Receptors	
1° Source	Potential Contaminants	Release Mechanism	2° Source	2° Release Mechanism	Exposure Routes	Human	Ecological
Contaminated pore water	Pesticides Nutrients Metals PAHs Phenols	Exposure to contaminated pore water			Ingestion of pore water	NA	Aquatic flora and fauna
		Migration of contaminants into surface water	Surface water	Release into Swan River	Incidental ingestion of surface water	Construction workers Recreational users of the Swan River	Aquatic flora and fauna Terrestrial fauna
					Direct exposure to surface water	Construction workers Recreational users of the Swan River	Aquatic flora and fauna Terrestrial fauna
		Vertical migration of contaminants into groundwater	Aquifer	Lateral migration of groundwater	Direct exposure to groundwater Ingestion of irrigation water	Recreation park users Construction workers Off-site groundwater users	Aquatic flora and fauna Terrestrial flora and fauna
		Bioaccumulation of contaminants	Aquatic flora and fauna		Ingestion of contaminated flora and fauna	Consumers of aquatic organisms	Aquatic flora and fauna Terrestrial fauna
Contaminated Surface water	Nutrients Metals Pathogens	Exposure to contaminated surface water			Incidental ingestion of surface water	Construction workers Recreational users of the Swan River	Aquatic flora and fauna Terrestrial flora and fauna
					Direct exposure to surface water	NA	Aquatic flora and fauna
		Vertical migration of contaminants into groundwater	Aquifer	Lateral migration of groundwater	Direct exposure to groundwater Ingestion of irrigation water	Recreation park users Construction workers Off-site groundwater users	Aquatic flora and fauna Terrestrial flora and fauna
		Bioaccumulation of contaminants	Aquatic flora and fauna		Ingestion of contaminated flora and fauna	Consumers of aquatic organisms	Aquatic flora and fauna Terrestrial fauna

Post-construction pathways for human exposure to any sediment borne contaminants are limited, as the proposed development does not include/encourage primary or secondary contact activities in the Swan River. Potential contact with river sediments is therefore primarily restricted to construction workers during initial construction of the pedestrian footbridge, and any subsequent maintenance and servicing of the bridge support structures.

Human exposure via surface water contact is plausible as the Swan River is often used for recreation which has the potential to result in primary and secondary contact. As the site will be connected to main water supply there will be no human consumption of surface water, as a potable water supply, although there is the potential for incidental ingestion during water sport activities.

The ecological receptor is the Swan River. The Swan River is the final discharge location for any groundwater underlying the land-based components of the proposed development and stormwater run-off from the Burswood Peninsula and Claisebrook catchment area. Therefore sediments are susceptible to any potential contamination within groundwater and stormwater. Potential contamination from land uses upstream of the site also presents a risk of impact to sediments and surface waters.

16.3 Assessment of Risk

16.3.1 Human Health – Potential Issues

The CSM presented in Table H has been derived based on an assessment of all plausible exposure pathways where an actual source and receptor have been identified. The risk to human health presented by the exceedances of sediment guidelines (heavy metals, PAHs and OC pesticides) and the presence of asbestos fibres is considered low, given the limited likely exposure pathways identified.

Construction workers and recreational users of the Swan River have been identified as the most sensitive receptors to direct contact including ingestion of river sediments. However the risk to these receptors is considered low and acceptable given the following:

- The proposed development does not include/encourage primary or secondary contact activities in the Swan River.
- Proposed construction works during the construction of the pedestrian footbridge will not involve the excavation of sediments and disturbance to sediments will be minimal.
- All site workers (including future maintenance and servicing workers of the bridge) will be required to wear adequate personal protective equipment (PPE) including long sleeve pants, shirts and gloves (where necessary) and practice responsible hygiene, thus minimising further the risk of incidental ingestion of sediments.

Although the concentration of benzo(α)pyrene was detected above relevant human health guidelines the potential risk posed to human health from these parameters via direct contact including ingestion is low given the above factors and the following:

- The PAH parameters detected were generally high molecular weight PAHs (HMW PAH).
- <1% of HMW PAHs partition into air, suspended sediment and biota, thus potential for vapour generation, leaching from sediments and mobilisation and transport through the environment is low, refer Appendix 9.

However further delineation of extent of impact is required to confirm that the actual risk to human health from PAH impacts is low, should these sediments potentially be required to be disturbed.

There is the potential for bioaccumulation of contaminants such as heavy metals and PAHs to occur in aquatic flora and fauna, which may pose a risk to human health via ingestion. Given that no significant benthic habitats were identified within the vicinity of the site, the potential for significant aquatic flora and fauna populations to exist is considered low. The development will also not promote recreational fishing within the vicinity of the site. In addition given the concentrations of contaminants identified, the likelihood for chronic toxic impacts on human health should 100% of the contaminant concentrations be bioavailable and bio-accessible is low, refer Appendix 9. Therefore given the low likelihood of significant aquatic flora and fauna populations to be present in combination with the limited access to sediments and the limited bio-availability/bio-accessibility of contaminants identified, the overall risk to human health via bio-accumulation of contaminants is considered to be low and acceptable.

Asbestos fibres were identified within the sediments, predominantly in the western portion of the site. In their current form the fibres do not pose a risk to current or future site users. The asbestos is not considered to pose a risk to construction workers because as identified above, minimal disturbance and contact with the sediments is anticipated during development based upon the current proposed construction methodologies. In addition as the sediments are submerged beneath the rivers water column no pathway exists for the inhalation of asbestos fibres, as such the risk to human health from asbestos fibres in river sediments is low.

Contaminants within the pore water pose a potential risk to human health via accidental ingestion and bioaccumulation. However the pathway is limited as:

- Contact with the sediment pore water by current and future site users will be minimal as outlined above.
- The potential for significant aquatic populations to exist is low.

- The potential for biota uptake of contaminants is low.
- The potential for recreational fishing will be limited.

There is the potential for contaminated pore water to migrate into the overlying surface water and also the underlying groundwater. However any contaminants would be significantly diluted during the process and as the majority of contaminants are associated with particulates, the potential for migration is minimal. Overall the risk to human health posed by contaminated pore water is considered low and acceptable.

Enterococci bacteria was identified marginally above guidelines for primary contact in one sample, posing a risk to human health. However the overall risk to human health is considered low given:

- Only one exceedance was identified which was slightly above guidelines, therefore distribution and magnitude of impact is limited.
- The proposed development does not include/encourage primary or secondary contact activities in the Swan River thus minimising potential exposure populations.
- The proposed development does not propose direct contact for construction workers with river water, therefore the potential for incidental ingestion is low.
- All site workers will be required to wear standard site PPE including trousers, long-sleeved shirts and gloves (where necessary), thus minimising further the risk of incidental ingestion.
- The site will be connected to the main scheme water supply, therefore river water will not be used as a potable supply and potential for ingestion is low.

16.3.2 Ecosystem Health (Swan River) – Potential Issues

16.3.2.1 Approach

The site is located in the Swan River, which is protected by the *Swan and Canning Rivers Management Act 2006*, and is listed as a “Conservation” wetland. The assessment of ecosystem health is therefore centred on this resource, but also considers the environment in which the sediments may potentially be mobilised to (Section 14).

The assessment considers contaminants in four forms:

1. Attached to sediments.
2. Liberated from the sediments (by leaching).
3. Within the pore water.
4. Within Swan River Water

The following sections deal with each of these forms.

16.3.2.2 Sediment Bound Contaminants

The investigation found that the sediment quality in the vicinity of the proposed development area was generally elevated above that sampled at control sites, both upstream and downstream. Contamination predominantly comprises PAHs and OC pesticides. As such, based on these prevailing conditions, sediments that may be mobilised during construction operations (i.e. piling) could potentially temporarily increase the distribution of contaminated sediments which may settle beyond their current location. However as the piling activities are anticipated to cause minimal disturbance, the risk of increased sediment migration is deemed to be minimal and as such the potential risk to the downstream ecosystem from proposed works is greatly reduced. Furthermore, naturally occurring distribution and re-suspension of sediments caused by river flooding and tidal movements is ongoing. It is likely that this continual process has contributed to the natural spread of the existing contaminant load both on site and downstream.

Contamination identified in the sediments is likely to have been caused via a combination of sources, being both local i.e. Claisebrook Power Station and Gas Works and stormwater inputs, and regional, being sediments transported from upstream catchments. Concentrations however are significantly below the levels observed prior to remediation of the sediments adjacent to the western shoreline (DoW 2011).

Contaminants within the sediments have the potential to impact down-gradient ecosystems to the south, via migration. It should be noted that natural fluvial processes are likely to have dispersed impacted sediments in the past and are expected to continue to do so. However significant impacts from contaminated site sediments have not been identified at the down-gradient control point. This therefore confirms that in general the contaminated sediments within the site have not had a significant negative impact on the down-gradient sediments via fluvial transportation, compared against up-gradient background conditions.

Contaminants associated with any suspended sediments have the potential to bio-accumulate in aquatic organisms within and down stream of the site; however given that minimal disturbance of sediments is anticipated the potential for proposed works to increase this risk to aquatic biota is considered low.

The most significant sensitive aquatic species considered to be present within the Swan River is the bottlenose dolphin *Tursiops aduncus*. A technical report (Holyoake et al. 2009) on an unusual mortality event amongst bottlenose dolphins in the Swan Canning Riverpark June to October 2009 assessed the potential for chemical contamination to have been the cause of death for six dolphins. It was reported that heavy metal concentrations were less than or similar to those observed in estuarine and coastal populations elsewhere. The report also confirmed that OC pesticides (dieldrin and DDE) and PCBs were amongst the highest reported globally in marine mammals. The

report also states that if chemical contaminants were having a significant effect on dolphins then unusual mortality events would have been recorded in previous decades, particularly as chemical contamination would have been expected to have been greater in previous generations. The report concludes that although contaminants were not a direct cause of the mortalities, it is likely that the contaminants do have an adverse impact on the health of the dolphins.

Given the findings of the above report it is reasonable to conclude that the likelihood for bio-accumulation of heavy metals from the sites sediments is not significantly impacting the dolphin populations compared to sediments throughout the Swan River bed. As the concentrations of OC pesticides in the sediments do not exceed the ISQG-high guidelines it is unlikely that the sediments within the site are significantly impacting the dolphin populations and more likely that dolphins are being affected by an alternate source of OC pesticides located within the Swan River. The PAH concentrations within the river sediments were generally within the range observed and reported in the DoW 2011 report, indicating that the PAH concentrations detected are representative of background sediment conditions.

Given the above conclusions, in addition to the fact that:

- Minimal benthic habitats were observed within the vicinity and immediately downstream of the site providing an unlikely habitat for dolphin feeding grounds.
- Dolphins are a transient species who will feed throughout the Swan River system,

The actual risk posed to dolphins from the identified site contamination is considered to be low.

16.3.2.3 Contaminant Leaching from Sediments

Elevated concentrations of copper, lead, mercury and zinc were identified in the river sediments above the ISQG-Low guideline values. To understand the significance of these elevated levels in the context of mobilisation, the sediments were subjected to elutriate tests using Swan River water. This analysis was undertaken to determine whether these contaminants are likely to be released to the water column, and hence become more bioavailable.

The tests demonstrated that none of the metals exceeding ISQG-Low guidelines concentrations exceeded the MEPG and FWG criteria on elutriate. As such these metals (copper, lead, mercury and zinc) do not pose a risk to the environment.

Arsenic and boron however although not exceeding ISQG-Low, upon elutriate analysis, exceeded the FWG. Boron is not considered to present a risk as elutriate concentrations were in line with existing concentrations within the Swan River water. The arsenic exceedances are considered not to pose any significant risk through bioaccumulation etc. as concentrations only marginally exceed the guidelines. Furthermore, any leached metals will be significantly diluted upon entering the water column.

16.3.2.4 Contaminants in Pore Water

Within the pore water metals and nutrients exceed respective guideline values. It is noted that the FWG/MEPG guidelines adopted reflect expected conditions in a water column within a river/estuary (or equivalent) and not pore water conditions, where concentrations of metals and nutrients would be expected to be naturally elevated. The majority of metals and nutrients are elevated above background concentrations (when compared against surface water results), however the majority of metal concentrations are likely to be bound to the fine sediments in the pore water. This is reflected in the low dissolved concentrations observed within the elutriate testing for metals.

Concentrations of PAHs and heptachlor were observed in the pore water above background concentrations; however ecological guidelines were not exceeded. Again these are likely to be bound to fine sediments within pore spacings and not within the water itself. This is reflected in the fact that the higher concentrations of PAHs reported were for HMW PAHs which have low solubilities and higher affinities for sediment, refer Appendix 9.

Any release of the contaminants however would have limited impact to the ecology in the river as significant dilution of the contaminants would occur upon entering the overlying water column.

16.3.2.5 Contaminants in Swan River Water

Within the surface water, metals and nutrients exceed their respective guideline values. The concentrations however were relatively consistent across the site area, including both up and downstream sampling locations. When the results are compared to monitoring data (RPS 2011) from the same period in previous years, concentrations broadly correspond with the historical data. As such the concentrations are deemed to be reflective of natural conditions and are not considered to pose a risk to the environment.

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17.0 CONCLUSIONS AND RECOMMENDATIONS

17.1 Summary of Findings

Sediment investigations were completed within the Swan River in the vicinity of the Burswood Stadium project area, being within the area of a proposed pedestrian bridge. A total of 20 sediment cores were investigated to depths of between 0.2 and 1 m bgl. These locations were sampled, with laboratory analysis of samples conducted over varying depths across the site. Targeted sampling was also conducted at a number of locations of potential sources of contamination, and upstream and downstream control locations.

Sediments were analysed for the identified contaminants of concern, including metals and metalloids, OC/OP pesticides, PAHs, phenols, TOC, cyanide, pathogens, nutrients, VOCs PCBs, carbamates, herbicides, TPH/BTEX, and asbestos. Samples were also submitted for acid sulfate soil confirmatory analysis utilising the chromium reducible sulfur long suite and components of the SPOCAS suite, TPA and pHox. The potential presence of MBOs was determined by analysis for TOC and AVS. Selective elutriate testing was also performed on samples using Swan River water.

Pore water and surface water was sampled at six locations each and analysed for metals and metalloids, OC/OP pesticides, PAHs, phenols, PCBs, carbamates, TPH/BTEX, VOCs, herbicides, cyanide, sulfide, volatile acids, pathogens and nutrients.

A benthic habitat survey was also undertaken throughout the study area including locations up and down stream of the site. The investigation recorded no significant seagrass or macroalgal habitats (which are recognised as key benthic primary producer habitats) across the ten transects; providing evidence that this area is of low significant ecological value. While microphytobenthos may be an important source of primary productivity in the area of the development, suitable habitat for microphytobenthos is widespread both upstream and downstream from the development site, microphytobenthos communities have been demonstrated to recover rapidly from disturbance (Larson and Sundbäck 2012) and the impacts from the proposed activities are considered to be relatively minor. From the investigation conducted, temporary increases in turbidity related to construction works are considered unlikely to have a significant detrimental impact on the benthic ecosystem in the area.

Contaminant concentrations (metals, OC pesticides, and PAHs) within sediments do not pose a risk to human health in their current form. Asbestos was also detected in the sediments, predominantly in the western portion of the site, however it does not pose a risk to human health in its current state and as no removal/excavation sediments is proposed there is again no future risk to construction workers based upon current development plans.

Concentrations of heavy metals, OC pesticides, and PAHs, were detected in the sediments above ISQG guidelines at the majority of locations however exceedances appear to be concentrated in the western portion of the site. Only minimal exceedances were observed at both the up and downstream background locations. As such, given the minimal sediment disturbance anticipated owing to piling construction methodologies, any sediments mobilised are not anticipated to have a significant impact on down stream environments. Re-suspension of sediments is also expected as a consequence of river flooding and tidal movements in any case (albeit over different time-scales). Further more as no significant benthic habitats were identified in the site area or downstream from the site, the risk to such habitats from sediment mobilisation is greatly reduced. Elutriate analysis with Swan River water indicated minimal leaching of heavy metals during suspension of sediment into the water column; thus limiting exposure to benthic habitats and aquatic organisms.

All sediments are classified PASS. Acidity, both inorganic and organic forms, were detected across the area with inorganic (i.e. pyritic acidic) being the dominate form. MBOs were not identified in the sediments. There is a significant amount of ANC in the sediments, albeit the larger-proportion of the ANC is likely not kinetically available, as it is bound in shell fragments. The kinetics for dissolution of this larger shell grit material are likely to be too slow to neutralise acidity generated from oxidation of pyritic sulfur. This is not significant, however, as material is unlikely to be dredged or removed from the river, as such the potential for oxidation of the sediments, and thereby release of acid, is minimal. As such no specific management of sediments in relation to ASS is required on the assumption that material remains within the river environment.

Pore water contaminants exceeding the DoH (2006) guidelines are unlikely to pose a risk to human health, as it is unlikely that pore water would be extracted for non-potable uses, i.e. not a usable source of water, and workers are unlikely to be exposed to sediment

Elevated concentrations of heavy metals, heptachlor and nutrients were detected in the pore water samples above FWGs and MEPGs. There is the potential for these parameters to impact the down-gradient Swan River water quality; however it is acknowledged that any contaminants entering the water column will be diluted.

With the exception of a limited risk presented by pathogens, surface water contaminants do not pose a risk to human health. Exceedances of metals and nutrients FWG/MEPG guidelines were observed, however concentrations were relatively consistent across the site, including up and down stream locations, and as such are considered to be representative of background conditions.

17.2 Assumptions and Uncertainties

The conclusions drawn and recommendations made here have been developed on the assumption that the data collected accurately represents the conditions at the site.

Uncertainties pertaining to the data collected include the following:

- temporal uncertainty; contaminants may not have been present in the tested medium at the time of sampling, but may be present within the site at other times. This applies particularly to pore water contamination
- spatial uncertainty; no sampling program can provide complete certainty that no contamination exists anywhere on the site.

Assumptions pertaining to the data collected include the following:

- Sediment and pore water samples were taken at a density, and to a depth, sufficient to allow an adequate spatial characterisation of the sediment and pore water at the site. This assumption is based on statistical methods which allow reasonable confidence levels to be determined.

Although uncertainties exist, the assumptions made are well founded and give confidence that the conclusions and recommendations reached regarding the site are sound.

17.3 Suitability for Use and Recommendations

Sediments within the site pose low to no risk to the ecology of the Swan River given the proposed construction methodologies and the lack of benthic habitats in the vicinity of the site. Therefore no specific management of sediments would be required during construction and the area is suitable for the proposed use. As such no further investigations are considered necessary for the site.

Should the construction methodologies for the bridge construction be revised and/or changed or additional sediment, then re-assessment of the potential risk posed by the revised construction methodology should be considered.

17.4 Limitations and Constraints

The site is currently undergoing a Section 38 referral to the Environmental Protection Agency for construction of the overall Perth Stadium, Burswood and associated river works. Works cannot proceed until the Section 38 referral has been considered by the EPA and a determination made.

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TABLES

Table 1: Sediment Sediment Analytical Suite

Sampling Areas	Sample Location Points	Analysis Suite														
		TPH/BTEX/PAH/PCBs	Phenols (speciated)	Trace metals (Al, As, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Ni, Se, Zn)	OC/OP Pesticides	Asbestos ID	Particle Size Distribution (60% of samples)	TOC	Cyanide	Pathogens (enterococci, thermotolerant coliforms)	Additional Metals (B, Mg, Mo, Sn)	Carbamates, Herbicides and VOCs	CRS long suite plus TPA	Nutrients (Total nitrogen, ammonia, nitrate and nitrite as NO _x -N, total kjeldahl nitrogen and reactive and total phosphorus)	Acid Volatile Sulfur	Leachate (metals, phenols)
Stage 1	T07	X	X	X	X	X	X	X	X	X	X			X		
	T08	X	X	X	X	X	X	X	X	X						
Stage 3	T11, T12, T13, T16, T21, T22	X	X	X	X	X	X	X	X	X						
	T10, T17, T19	X	X	X	X	X	X	X	X	X	X	X	X			
	T14, T15, T18, T20	X	X	X	X	X	X	X	X	X		X		X	X	
	T23	X	X	X	X	X	X	X	X	X	X					
Background	T01	X	X	X	X	X	X	X	X	X	X	X	X			
	T02, T09	X	X	X	X	X	X	X	X	X		X				
	T24	X	X	X	X	X	X	X	X	X	X					

Table 2: Surface Water and Pore Water Analytical Suite

Sampling Areas	Sample Location Points	Analysis Suite										
		Trace metals (Al, As, Cd, Cr, Cr(VI), Cu, Fe, Pb, Mn, Hg, Ni, Se, Zn)	OC/OP Pesticides	TPH/BTEX	Carbamates, Herbicides and VOCs	Cyanide	Phenols	PAH	PCB's	Nutrients (Total nitrogen, ammonia, nitrate and nitrite as NO _x -N, total kjeldahl nitrogen and reactive and total phosphorus)	Pathogens (enterococci, thermotolerant coliforms)	
Pore Water												
Stage 1	T07, T08	X	X	X	X	X	X	X	X	X	X	
Stage 3	T29, T30, T31, T32	X	X	X	X	X	X	X	X	X	X	
Surface Water												
Stage 1	T25, T27	X	X	X	X	X	X	X	X	X	X	
Stage 3	T26, T28	X	X	X	X	X	X	X	X	X	X	
Background	T01, T02	X	X	X	X	X	X	X	X	X	X	

Table 4: Sediment Analytical Results - Metals, Metalloids, Inorganics, Pathogens and Nutrients

Definitions:

LOR (Limits of Reporting), ISQG (Interim Sediment Quality Guidelines)

ND denotes not detected. NG denotes no guideline. N asbestos not identified. --- denotes not tested

Notes:

All values in mg/kg except TOC which is in %, Enterococci Count in CFU/g (Colony Forming Units per gram of sample) and Themotolerant Coliforms in MPN/g (Most Probable Numbers of coliforms per gram of sample). Table uses colour coding for data interpretation. All guideline values from DEC Assessment Levels for Soil, Version 4, February 2010
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Sample ID	Date Sampled	Top	Bottom	Trigger	Total Metals													Misc		Pathogens		Nutrients								
					Aluminium	Arsenic	Boron	Cadmium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Selenium	Tin	Zinc	Cyanide	Total Organic Carbon	Enterococci Count	Termotolerant Coliforms	Phosphorus	Phosphorous Reactive	Total Nitrogen	Nitrogen Kjeldahl Total	Ammonia (as N)	NOX
					ISQG-High	ISQG-Low	LOR	ISQG-High	ISQG-Low	LOR	ISQG-High	ISQG-Low	LOR	ISQG-High	ISQG-Low	LOR	ISQG-High	ISQG-Low	LOR	ISQG-High	ISQG-Low	LOR	ISQG-High	ISQG-Low	LOR	ISQG-High	ISQG-Low	LOR	ISQG-High	ISQG-Low
T01C01	10/12/2012	0.0	0.2		13200	9	60	0.4	43	58	36200	81	5170	219	0.2	6	24	5	5	245	1	2.67	10	3	274	0.5	1540	1540	40	0.1
T09C01	10/12/2012	0.0	0.2		10200	8	60	0.3	33	50	26700	66	4300	140	0.1	4	11	5	5	198	1	1.40	10	3	---	---	---	---	---	
T02C01	10/12/2012	0.0	0.2		17600	11	90	0.3	56	81	44700	99	8110	301	0.2	2	18	5	5	344	1	3.32	10	3	---	---	---	---	---	
T24C01	11/12/2012	0.0	0.2		11900	7	80	0.1	35	27	35000	23	4730	212	0.1	4	11	5	5	48	1	2.71	10	3	---	---	---	---	---	
T07C01	10/12/2012	0.0	0.2		10800	8	70	0.2	34	37	31400	31	5100	215	0.1	5	11	5	5	89	1	3.57	10	3	200	2.8	1170	1170	190	0.1
T08C01	10/12/2012	0.0	0.2		13500	11	---	0.6	43	88	33900	82	---	154	0.1	---	14	5	---	357	1	3.39	10	3	---	---	---	---	---	
T10C01	11/12/2012	0.0	0.2		14200	10	80	0.7	40	70	42000	91	6780	219	0.2	8	13	5	5	289	1	3.16	10	3	309	0.4	1560	1560	20	0.1
T11C01	10/12/2012	0.0	0.2		15400	12	---	0.6	49	102	38500	118	---	192	0.2	---	18	5	---	384	2	2.96	10	3	---	---	---	---	---	
T12C01	11/12/2012	0.0	0.2		4140	6	---	0.2	12	26	13000	30	---	96	0.1	---	5	5	---	102	1	0.93	10	3	---	---	---	---	---	
T13C01	10/12/2012	0.0	0.5		17200	11	---	0.4	55	81	44200	111	---	196	0.1	---	16	5	---	346	2	3.16	10	3	---	---	---	---	---	
T14C01	11/12/2012	0.0	0.2		9620	7	---	1.0	30	106	24200	108	---	119	0.1	---	11	5	---	517	1	2.73	10	3	---	---	---	---	---	
T14C02	11/12/2012	0.2	0.5		10800	6	---	1.0	34	117	28900	123	---	127	0.1	---	13	5	---	600	1	2.51	10	3	---	---	---	---	---	
T14C03	11/12/2012	0.5	1.0		7900	7	---	0.8	24	94	21000	77	---	113	0.1	---	10	5	---	443	1	1.25	10	3	---	---	---	---	---	
T15C01	11/12/2012	0.0	0.2		13200	7	---	0.7	48	88	35100	162	---	344	0.1	---	14	5	---	438	1	2.71	10	3	---	---	---	---	---	
T15C02	11/12/2012	0.2	0.5		16400	9	---	1.1	60	167	40400	233	---	215	0.1	---	18	5	---	628	1	3.68	10	3	---	---	---	---	---	
T16C01	11/12/2012	0.0	0.2		13100	9	---	1.0	39	109	29500	106	---	144	0.1	---	13	5	---	516	1	3.43	10	3	---	---	---	---	---	
T17C01	11/12/2012	0.0	0.2		19600	12	110	0.7	70	137	49200	228	8670	174	0.1	2	18	5	7	612	1	3.19	10	3	541	1.9	2220	2220	30	0.1
T17C02	11/12/2012	0.2	0.5		18100	10	---	0.6	63	113	44800	188	---	157	0.1	---	16	5	---	487	1	3.24	10	3	---	---	---	---	---	
T18C01	11/12/2012	0.0	0.2		17800	10	---	0.4	57	79	45000	129	---	186	0.1	---	16	5	---	365	2	3.04	10	3	---	---	---	---	---	
T18C02	11/12/2012	0.2	0.5		18100	10	---	0.5	61	97	48000	154	---	190	0.1	---	17	5	---	448	1	3.24	10	3	---	---	---	---	---	
T18C03	11/12/2012	0.5	1.0		18300	11	---	0.5	61	87	48500	152	---	180	0.1	---	16	5	---	433	1	3.09	10	3	---	---	---	---	---	
T19C01	11/12/2012	0.0	0.2		18400	13	---	0.4	57	99	44800	132	---	159	0.1	---	16	5	---	431	1	2.98	10	3	---	---	---	---	---	
T19C02	11/12/2012	0.2	0.5		14700	8	---	0.6	46	98	35100	104	---	122	0.1	---	14	5	---	330	1	1.30	10	3	382	2.2	1550	1550	20	0.1
T20C01	11/12/2012	0.0	0.2		18100	13	---	0.2	52	75	48300	96	---	207	0.1	---	15	5	---	351	1	3.28	10	3	---	---	---	---	---	
T20C02	11/12/2012	0.2	0.5		19300	11	---	0.4	58	79	50400	116	---	234	0.1	---	16	7	---	350	1	3.27	10	3	---	---	---	---	---	
T21C01	10/12/2012	0.0	0.2		11400	8	---	0.4	38	60	28000	60	---	92	0.1	---	12	5	---	204	1	2.12	10	3	---	---	---	---	---	
T22C01	11/12/2012	0.0	0.2		18500	10	---	0.7	55	107	42600	103	---	168	0.1	---	18	5	---	391	1	2.88	10	3	---	---	---	---	---	
T23C01	11/12/2012	0.0	0.2		19100	9	100	0.5	60	102	44500	141	7560	137	0.1	2	16	5	5	422	1	3.03	10	3	---	---	---	---	---	
				MEAN	14663	9		0.55	47	87	37639	112		179	0.11		15	5		370	1	2.79								
				MEDIAN	15050	10	80	0.50	49	88	39450	107	5975	177	0.10	4	16	5	5	375	1	3.04								
				STDEV	3989	2		0.27	14	31	9582	52		57	0.04		4	0		149	0	0.73								
				COUNT	28	28		28	28	28	28	28		28	28		28	28		28	28									
				95%UCL	15945	10		0.63	51	97	40718	129		197	0.13		16	5		418	1	3.03								

Table 6: Sediment Analytical Results - TPH, BTEX and MAHs

Definitions:

LOR (Limits of Reporting), ISQG (Interim Sediment Quality Guidelines)
ND denotes not detected. NG denotes no guideline. --- denotes not tested

Notes:

All values in mg/kg unless indicated. Table uses colour coding for data interpretation. All guideline values from DEC Assessment Levels for Soil, Version 4, February 2010

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Sample ID	Date Sampled	Top	Bottom	Trigger	BTEX						MAHs							TPH						
					Benzene	Ethyl Benzene	meta,para-Xylene	ortho-Xylene	Toluene	Xylene	1,2,4-Trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-Butylbenzene	n-Propylbenzene	p-Isopropyltoluene	sec-Butylbenzene	Styrene	tert-Butylbenzene	C06-9	C10-14	C15-28	C29-36	C10-C36
					ISQG-High	ISQG-Low	LOR	ISQG-High	ISQG-Low	LOR	ISQG-High	ISQG-Low	LOR	ISQG-High	ISQG-Low	LOR	ISQG-High	ISQG-Low	LOR	ISQG-High	ISQG-Low	LOR	ISQG-High	ISQG-Low
T01C01	10/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	3	3	37	38	75	
T02C01	10/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	3	4	60	62	126	
T09C01	10/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	3	4	59	68	131	
T24C01	11/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	3	22	596	244	862	
T07C01	10/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	3	6	118	103	227	
T08C01	10/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	6	167	154	327	
T10C01	11/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	3	14	396	316	726	
T11C01	10/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	6	131	118	255	
T12C01	11/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	3	59	76	135	
T13C01	10/12/2012	0.0	0.5		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	3	47	58	105	
T14C01	11/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	16	426	351	793	
T14C02	11/12/2012	0.2	0.5		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	9	284	220	513	
T14C03	11/12/2012	0.5	1.0		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	6	147	129	282	
T15C01	11/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	7	174	148	329	
T15C02	11/12/2012	0.2	0.5		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	10	174	171	355	
T16C01	11/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	23	539	395	957	
T17C01	11/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	3	12	136	145	293	
T17C02	11/12/2012	0.2	0.5		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	7	161	135	303	
T18C01	11/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	3	56	61	117	
T18C02	11/12/2012	0.2	0.5		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	5	94	98	197	
T18C03	11/12/2012	0.5	1.0		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	9	127	104	240	
T19C01	11/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	6	124	125	255	
T19C02	11/12/2012	0.2	0.5		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	3	101	90	191	
T20C01	11/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	6	59	57	122	
T20C02	11/12/2012	0.2	0.5		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	20	136	113	269	
T21C01	10/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	3	53	58	111	
T22C01	11/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	---	---	---	---	---	---	---	---	3	6	130	132	268	
T23C01	11/12/2012	0.0	0.2		0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	3	14	179	160	353	
				MEAN															3	8	170	140	318	
				MEDIAN															3	6	134	127	269	
				STDEV															0	6	146	90	238	
				COUNT															28	28	28	28	28	
				95%UCL															3	10	217	169	395	

Table 7: Sediment Analytical Results - OC/OP Pesticides

Definitions:
LOR (Limits of Reporting), ISQG (Interim Sediment Quality Guidelines)
ND denotes not detected. NG denotes no guideline. --- denotes not tested
Notes:
All values in mg/kg unless indicated. Table uses colour coding for data interpretation. All guideline values from DEC Assessment Levels for Soil, Version 4, February 2010
denotes <LOR
Guidelines have been adjusted based upon the 95% Upper Confidence Level (UCL) of Total Organic Carbon of the samples 3.03%

Sample ID	Date Sampled	Top	Bottom	Trigger	OCs																											
					Aldrin	Aldrin+Dieldrin	Alpha-BHC	Beta-BHC	Chlordane	cis-Chlordane	DDD	DDE	DDT	DDD + DDE + DDT	Delta-BHC	Dieldrin	Endosulfan (sum)	Endosulfan I	Endosulfan II	Endosulfan Sulfate	Endrin	Endrin Aldehyde	Endrin Ketone	gamma-BHC (Lindane)	HeCB	Hepachlor	Hepachlor Epoxide	Methoxychlor	Oxychlorane	trans-Chlordane		
					ISQG-High	ISQG-Low	LOR	NG	NG	NG	NG	0.0182	0.0182	0.0606	0.0818	0.1394	NG	NG	0.0242	NG	NG	NG	NG	0.0242	NG	NG	0.0030	NG	NG	NG	NG	NG
T01C01	10/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0010	0.0023	0.0005	0.0033	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T02C01	10/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0010	0.0005	0.0005	0.0010	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T09C01	10/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0010	0.0005	0.0005	0.0010	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T24C01	11/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0016	0.0037	0.0005	0.0106	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T07C01	10/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0016	0.0027	0.0005	0.0043	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T08C01	10/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0031	0.0078	0.0005	0.0110	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T10C01	11/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0091	0.0251	0.0005	0.0342	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T11C01	10/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0046	0.0056	0.0005	0.0102	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T12C01	11/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T13C01	10/12/2012	0.0	0.5		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0014	0.0005	0.0005	0.0014	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T14C01	11/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0118	0.0255	0.0005	0.0373	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T14C02	11/12/2012	0.2	0.5		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0079	0.0159	0.0005	0.0238	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T14C03	11/12/2012	0.5	1.0		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0085	0.0161	0.0005	0.0246	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T15C01	11/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0050	0.0074	0.0005	0.0123	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T15C02	11/12/2012	0.2	0.5		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0080	0.0122	0.0005	0.0202	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T16C01	11/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0086	0.0225	0.0005	0.0311	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T17C01	11/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0066	0.0005	0.0005	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T17C02	11/12/2012	0.2	0.5		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0023	0.0005	0.0005	0.0023	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T18C01	11/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0005	0.0011	0.0005	0.0011	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T18C02	11/12/2012	0.2	0.5		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0005	0.0026	0.0005	0.0026	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T18C03	11/12/2012	0.5	1.0		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T19C01	11/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0005	0.0012	0.0005	0.0012	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T19C02	11/12/2012	0.2	0.5		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0006	0.0005	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T20C01	11/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T20C02	11/12/2012	0.2	0.5		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T21C01	10/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0013	0.0018	0.0005	0.0031	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T22C01	11/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0012	0.0018	0.0005	0.0060	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
T23C01	11/12/2012	0.0	0.2		0.0005	0.001	0.0005	0.0005	0.00025	0.00025	0.0005	0.0013	0.0005	0.0013	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
					MEAN	0.0010	0.0005	0.0005	0.0003	0.0003	0.0030	0.0062	0.0005	0.0089	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
					MEDIAN	0.0005	0.0005	0.0005	0.0003	0.0003	0.0011	0.0025	0.0005	0.0032	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	

Table 9: Sediment Analytical Results – VOCs

Definitions:

LOR (Limits of Reporting), ISQG (Interim Sediment Quality Guidelines)
ND denotes not detected. NG denotes no guideline. --- denotes not tested

Notes:

All values in mg/kg unless indicated. Table uses colour coding for data interpretation. All guideline values from DEC Assessment Levels for Soil, Version 4, February 2010

denotes <LOR

Guidelines have been adjusted based upon the 95% Upper Confidence Level (UCL) of Total Organic Carbon of the samples 3.03%

Sample ID	Date Sampled	Top	Bottom	Trigger	VOCs																												
					1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropylene	1,2,3-trichlorobenzene	1,2,3-Trichloropropane	1,2,4-trichlorobenzene	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane (EDB)	1,2-dichlorobenzene	1,2-dichloroethane	1,2-Dichloropropane	1,3-dichlorobenzene	1,3-Dichloropropane	1,4-dichlorobenzene	2,2-Dichloropropane	2-Butanone (MEK)	2-Chlorotoluene	2-Hexanone (MBK)	4-Chlorotoluene	4-Methyl-2-pentanone (MIBK)	Bromobenzene	Bromodichloromethane			
					ISQG-High	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
					ISQG-Low	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
LOR	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	5	0.5	5	0.5	5					
T01C01	10/12/2012	0.0	0.2		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	5	0.5	5	0.5	5					
T02C01	10/12/2012	0.0	0.2		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	5	0.5	5	0.5	5					
T07C01	10/12/2012	0.0	0.2		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	5	0.5	5	0.5	5					
T09C01	10/12/2012	0.0	0.2		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	5	0.5	5	0.5	5					
T10C01	11/12/2012	0.0	0.2		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	5	0.5	5	0.5	5					
T17C01	11/12/2012	0.0	0.2		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	5	0.5	5	0.5	5					
T23C01	11/12/2012	0.0	0.2		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	5	0.5	5	0.5	5					
T24C01	11/12/2012	0.0	0.2		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	5	0.5	5	0.5	5					
Sample ID	Date Sampled	Top	Bottom	Trigger	VOCs cont																												
					Bromoform	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-Dichloropropylene	cis-1,4-Dichloro-2-butene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Hexachloro-1,3-butadiene	Iodomethane	Naphthalene	Pentachloroethane	Tetrachloroethene (PCE)	trans-1,2-dichloroethene	trans-1,3-Dichloropropylene	trans-1,4-Dichloro-2-butene	Trichloroethene (TCE)	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride			
					ISQG-High	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
					ISQG-Low	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
LOR	0.5	5	0.5	0.5	0.5	5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	5				
T01C01	10/12/2012	0.0	0.2		0.5	5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	5				
T02C01	10/12/2012	0.0	0.2		0.5	5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	5				
T07C01	10/12/2012	0.0	0.2		0.5	5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	5				
T09C01	10/12/2012	0.0	0.2		0.5	5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	5				
T10C01	11/12/2012	0.0	0.2		0.5	5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	5				
T17C01	11/12/2012	0.0	0.2		0.5	5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	5				
T23C01	11/12/2012	0.0	0.2		0.5	5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	5				
T24C01	11/12/2012	0.0	0.2		0.5	5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	5				

Table 10: Sediment Analytical Results – Asbestos

TRUE Denotes asbestos fibres identified in sample

Field ID	Lab ID	Top	Bottom	Weight Total Sample	Result	Asbestos Detected
T01C01	EP1210303001	0.0	0.2	146	No Asbestos detected at the reporting limit of 0.1	FALSE
T09C01	EP1210303009	0.0	0.2	265	No Asbestos detected at the reporting limit of 0.1	FALSE
T02C01	EP1210303002	0.0	0.2	146	No Asbestos detected at the reporting limit of 0.1	FALSE
T24C01	EP1210363020	0.0	0.2	207	Chrysotile Asbestos Detected Two small friable asbestos fibre bundles approx 3 x1 x 0.5mm	TRUE
T07C01	EP1210303007	0.0	0.2	205	No Asbestos detected at the reporting limit of 0.1	FALSE
T08C01	EP1210303008	0.0	0.2	207	No Asbestos detected at the reporting limit of 0.1	FALSE
T10C01	EP1210303010	0.0	0.2	344	No Asbestos detected at the reporting limit of 0.1	FALSE
T11C01	EP1210303011	0.0	0.2	148	No Asbestos detected at the reporting limit of 0.1	FALSE
T12C01	EP1210303012	0.0	0.2	279	No Asbestos detected at the reporting limit of 0.1	FALSE
T10C01	EP1210363001	0.0	0.5	215	Crocidolite and Chrysotile Asbestos Detected Small friable asbestos fibre bundles approx 5 x1 x 1mm	TRUE
T12C01	EP1210363002	0.0	0.2	306	No Asbestos detected at the reporting limit of 0.1	FALSE
T14C01	EP1210363003	0.2	0.5	192	No Asbestos detected at the reporting limit of 0.1	FALSE
T14C02	EP1210363004	0.5	1.0	239	Chrysotile Asbestos Detected Small friable asbestos fibre bundles approx 2 x 0.5 x 0.5mm	TRUE
T14C03	EP1210363005	0.0	0.2	338	Amosite Asbestos Detected One small friable asbestos fibre bundle approx 3 x1 x 0.5mm	TRUE
T15C01	EP1210363006	0.2	0.5	239	Crocidolite Asbestos Detected One small friable asbestos fibre bundle approx 3 x1 x 0.5mm	TRUE
T15C02	EP1210363007	0.0	0.2	203	Chrysotile Asbestos Detected Several small friable asbestos fibre bundles approx 5 x1 x 0.5mm	TRUE
T16C01	EP1210363008	0.0	0.2	290	No Asbestos detected at the reporting limit of 0.1	FALSE
T17C01	EP1210363009	0.2	0.5	148	No Asbestos detected at the reporting limit of 0.1	FALSE
T17C02	EP1210363010	0.0	0.2	163	No Asbestos detected at the reporting limit of 0.1	FALSE
T18C01	EP1210363011	0.2	0.5	230	No Asbestos detected at the reporting limit of 0.1	FALSE
T18C02	EP1210363012	0.5	1.0	188	No Asbestos detected at the reporting limit of 0.1	FALSE
T18C03	EP1210363013	0.0	0.2	184	No Asbestos detected at the reporting limit of 0.1	FALSE
T19C01	EP1210363014	0.2	0.5	116	No Asbestos detected at the reporting limit of 0.1	FALSE
T19C02	EP1210363015	0.0	0.2	219	No Asbestos detected at the reporting limit of 0.1	FALSE
T20C01	EP1210363016	0.2	0.5	114	No Asbestos detected at the reporting limit of 0.1	FALSE
T20C02	EP1210363017	0.0	0.2	147	No Asbestos detected at the reporting limit of 0.1	FALSE
T22C01	EP1210363018	0.0	0.2	246	No Asbestos detected at the reporting limit of 0.1	FALSE
T23C01	EP1210363019	0.0	0.2	137	No Asbestos detected at the reporting limit of 0.1	FALSE
TZC01	EP1210363021	0.5	1.0	205	No Asbestos detected at the reporting limit of 0.1	FALSE
TZC02	EP1210363022	0.2	0.5	197	No Asbestos detected at the reporting limit of 0.1	FALSE
TZZC02	PE073244.001	0.2	0.5	135	No Asbestos detected at the reporting limit of 0.1	FALSE

Table 11: Elutriate Analytical Results - Metals and Metalloids

Definitions: LOR (Limits of reporting), FWG (Freshwater Guidelines) for slightly - moderately disturbed systems, MEPG (Marine Ecosystem Protection Guidelines) for slightly - moderately disturbed systems, DoH (Domestic Non-potable Groundwater Use)
ISQG (Interim Sediment Quality Guidelines)
Notes: Guideline values have in the first instance been reported from DEC 2010 'Assessment Levels for Soil, Sediment and Water' where no guidance is given ANZECC/ARMCANZ 2000 Freshwater and Marine WQ Guidelines Chapter 3 values have been adopted
All elutriate results expressed as mg/L and sediment results in mg/kg
denotes <LOR

Sample ID	Date Sampled	Trigger	Elutriate Metals and Metalloids															
			Aluminium	Arsenic	Boron	Cadmium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Selenium	Tin	Zinc
		DoH	2	0.07	40	0.02	NG	20	3	0.1	NG	5	0.01	0.5	0.2	0.1	NG	30
		MEPG	NG	NG	NG	0.0007	NG	0.0013	1	0.0044	NG	NG	0.0001	NG	0.007	NG	NG	0.015
		FWG	0.055	0.013	0.37	0.0002	NG	0.0014	0.3	0.0034	NG	1.9	0.00006	NG	0.011	0.005	NG	0.008
		LOR	0.005	0.0005	0.1	0.0002	0.0005	0.001	0.005	0.0002	1	0.0005	0.0001	0.0001	0.0005	0.002	0.005	0.005
Swan River	11/12/2012		0.005	0.0010	2.85	0.0002	0.0005	0.004	0.005	0.0002	925	0.0048	0.0001	0.0081	0.0006	0.002	0.005	0.005
T14A	11/12/2012		0.012	0.0060	3.12	0.0002	0.0005	0.001	0.010	0.0002	925	0.431	0.0001	0.1160	0.0006	0.002	0.005	0.005
T15A	11/12/2012		0.010	0.0225	2.91	0.0002	0.0005	0.001	0.058	0.0002	901	0.303	0.0001	0.0380	0.0005	0.002	0.005	0.005
T19A	11/12/2012		0.006	0.0090	2.85	0.0002	0.0005	0.001	0.025	0.0002	927	0.443	0.0001	0.0247	0.0005	0.002	0.005	0.005
T20A	11/12/2012		0.005	0.0135	2.76	0.0002	0.0005	0.001	0.185	0.0002	910	0.729	0.0001	0.0142	0.0005	0.002	0.005	0.005
		ISQG-High	NG	70	NG	10	370	270	NG	220	NG	NG	1	NG	52	NG	NG	410
		ISQG-Low	NG	20	NG	1.5	80	65	NG	50	NG	NG	0.15	NG	21	NG	NG	200
		LOR	50	5	50	0.1	2	5	50	5	50	5	0.1	2	2	5	5	5
T14C01	11/12/2012		9620	7	---	1.0	30	106	24200	108	---	119	0.1	---	11	5	---	517
T15C01	11/12/2012		13200	7	---	0.7	48	88	35100	162	---	344	0.1	---	14	5	---	438
T19C01	11/12/2012		18400	13	---	0.4	57	99	44800	132	---	159	0.1	---	16	5	---	431
T20C01	11/12/2012		18100	13	---	0.2	52	75	48300	96	---	207	0.1	---	15	5	---	351

Table 12: Elutriate Analytical Results - Phenols

Definitions: LOR (Limits of reporting), FWG (Freshwater Guidelines) for slightly - moderately disturbed systems, MEPG (Marine Ecosystem Protection Guidelines) for slightly - moderately disturbed systems, DoH (Domestic Non-potable Groundwater Use)
ISQG (Interim Sediment Quality Guidelines)
Notes: Guideline values have in the first instance been reported from DEC 2010 'Assessment Levels for Soil, Sediment and Water' where no guidance is given ANZECC/ARMCANZ 2000 Freshwater and Marine WQ Guidelines Chapter 3 values have been adopted
All elutriate results expressed as mg/L and sediment results in mg/kg
denotes <LOR

Sample ID	Date Sampled	Trigger	Phenols														
			2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3,4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol			
		DoH	NG	0.2	2	NG	NG	3	NG	NG	NG	NG	NG	0.011	0.4		
		MEPG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	0.0036	0.32		
		FWG	NG	0.003	0.12	NG	NG	0.34	NG	NG	NG	NG	NG	0.0036	0.32		
		LOR	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001		
Swan River	11/12/2012		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001		
T14A	11/12/2012		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001		
T15A	11/12/2012		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001		
T19A	11/12/2012		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001		
T20A	11/12/2012		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001		
		ISQG-High	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG		
		ISQG-Low	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG		
		LOR	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5		
T14C01	11/12/2012		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	2	0.5
T15C01	11/12/2012		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	2	0.5
T19C01	11/12/2012		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	2	0.5
T20C01	11/12/2012		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	2	0.5

Table 13: Sediment Analytical Results - Acid Sulfate Soil Results

Legend
 3.8 Field test value indicative of PASS
 3.6 Field test value indicative of AASS
 0.04 Denotes sample exceeds DEC Action Criteria of 0.03 (% S) or 18 mol H+ / tonne, for excavations of >1000 tonnes.
 Definitions: NG (No Guideline), LOR (Limit of Reporting), AVS (Acid Volatile Sulfur)
 Notes: This table utilises colour coding to aid data interpretation, avoid black and white reproduction

Sample ID	Date Sampled	Depth (mbg)	Description	Test	Acidity Trail - EA029B					AVS	CRS - EA027		Net Acidity		Net Acidity including ANC		ANC	
				ALHS code	23A	23F	s23F			22B								
				Analyte	pH _{KCl}	pH _{ox}	TAA	S _{TAA}	TPA	AVS	aS _{CR}	S _{CR}	S _{CR} + S _{TAA}		S _{CR} + S _{TAA} - ANC		ANC	ANC
				Units	pH	pH	mol(H ⁺ /tonne)	% S	mol(H ⁺ /tonne)	%	mol(H ⁺ /tonne)	% S	mol(H ⁺ /tonne)	% S	mol(H ⁺ /tonne)	% S	mol(H ⁺ /tonne)	% S
				LOR	0.1	0.1	2	0.005	2	0.001	8	0.02	10	0.02	10	0.02	10	0.02
Guideline	<4.0	<4.0	18	0.03	18	0.03	18	0.03	18	0.03	18	0.03	18	0.03	NG	NG		
T14A	11/12/2012	0.00	SANDY CLAY - Black/Dark Grey, Medium/Fine Grained, Saturated, Trace shell fragments		8.6	7.4	<2	<0.02	<2	0.012	505	0.81	505	0.81	<10	<0.02	1190	1.91
T15A	11/12/2012	0.00	SILTY CLAY - Dark Grey/Grey, Medium/Fine Grained, Saturated, Trace shell fragments		8.3	2.5	<2	<0.02	963	0.007	586	0.94	586	0.94	257	0.41	493	0.79
T19A	11/12/2012	0.00	MEDIUM CLAY - Black/Dark Grey, Fine Grained, Saturated, Trace shell fragments		8.4	3.6	<2	<0.02	305	0.019	550	0.88	550	0.88	113	0.18	656	1.05
T20A	11/12/2012	0.00	MEDIUM CLAY - Black/Dark Grey, Fine Grained, Saturated, Trace shell fragments		8.3	3.6	<2	<0.02	346	0.020	658	1.06	658	1.06	273	0.44	577	0.93

Table 14: Surface Water and Pore Water Analytical Results - Metals, Metalloids, Inorganics, Pathogens and Nutrients

All results expressed as mg/L except for pH (pH units), ratios (unitless), EC (µS/cm) and pathogens CFU/100 mL (Colony Forming Units per 100 mL of sample)
 a) Aluminium trigger level relates to waters with a pH >6.5, no guideline is provided for water pH <6.5. Note that cells exceeding the trigger concentration for Al have been highlighted irrespective of recorded pH
 b) The laboratory limit of reporting is recognised as exceeding the guideline trigger value, c) Values for Estuarine environments (South-west Western Australia)
 d) Values for Lowland Rivers - Table 3.3.6 ANZECC/ARMCANZ 2000 Freshwater and Marine WQ Guidelines Chapter 3
 e) Chemicals for which possible bioaccumulation and secondary poisoning should be considered. f) Based on sample having a pH <6.0
 Guidance triggers derived from Primary and Secondary Recreational Contact Standards - NHMRC (2008)
 Guidance triggers are for median concentrations of cells per 100mL of water
 * denotes hexavalent chromium guideline.
 ^ denotes trivalent chromium guideline.

Sample ID	Date Sampled	Trigger	Total Metals															Field Parameters				Misc			Pathogens		Nutrients														
			Aluminium	Arsenic	Boron	Cadmium	Chromium	Chromium VI	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Selenium	Tin	Zinc	pH	E.C	Redox	DO	Cyanide	Sulfide as S ²⁻	Volatiles Acids (as Acetic Acid)	Enterococci	Thermotolerant Coliforms	Total Phosphorus	Reactive Phosphorus	Total Nitrogen	Total Nitrogen Kjeldahl	Ammonia (as N)	NOX	Nitrate (as N)	Nitrite (as N)					
		DoH	2	0.07	40	0.02	0.5*	0.5	20	3	0.1	NG	5	0.01	0.5	0.2	0.1	NG	30	NG	NG	NG	0.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG		
		MEPG	NG	NG	NG	0.0007	0.0044*	0.0044	0.0013	1	0.0044	NG	NG	0.0001	NG	0.007	NG	NG	0.015	7.5-8.5 ^c	NG	NG	NG	0.004	NG	NG	NG	NG	0.03 ^c	0.005 ^{c,b}	0.75 ^c	NG	0.04 ^c	0.045 ^c	NG	NG	NG	NG	NG		
		FWG	0.055	0.013	0.37	0.0002	0.001*	0.001	0.0014	0.3	0.0034	NG	1.9	0.00006	NG	0.011	0.005	NG	0.008	6.5-8.0	NG	NG	NG	0.007	NG	NG	NG	NG	0.065 ^d	0.04 ^d	1.2 ^d	NG	0.08 ^d	0.15 ^d	NG	NG	NG	NG	NG		
		PC	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	
		SC	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
		LOR	0.005	0.0005	0.1	0.0002	0.0005	0.01	0.001	0.005	0.0002	1	0.0005	0.0001	0.0001	0.0005	0.002	0.005	0.005				0.004	0.1	5	1	1	0.01	0.01	0.1	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01		
Surface Waters																																									
T01W	13/12/2012		0.104	0.001	3.07	0.0002	0.0005	0.01	0.009	0.199	0.004	940	0.0545	0.0001	0.0084	0.001	0.002	0.005	0.107	7.58	32900	145	4.55	0.004	0.1	75	38	100	0.06	0.02	0.7	0.7	0.09	0.01	0.01	0.01	0.01	0.01			
T02W	13/12/2012		0.114	0.001	3.01	0.0002	0.0005	0.01	0.003	0.201	0.0023	971	0.0328	0.0001	0.0084	0.0008	0.002	0.005	0.007	7.49	34100	190	4.69	0.004	---	---	16	20	0.05	0.01	0.6	0.6	0.09	0.01	0.01	0.01	0.01	0.01			
T25W	13/12/2012		0.104	0.001	2.92	0.0002	0.0005	0.01	0.010	0.184	0.0015	940	0.0439	0.0001	0.0084	0.0009	0.002	0.005	0.010	7.68	33800	138	4.63	0.004	0.1	68	19	90	0.11	0.03	1.0	1.0	0.08	0.01	0.01	0.01	0.01	0.01			
T26W	13/12/2012		0.286	0.001	3.04	0.0002	0.0005	0.01	0.010	0.525	0.0021	935	0.0461	0.0001	0.0084	0.0007	0.002	0.005	0.012	7.77	33600	130	4.93	0.004	0.1	83	24	100	0.04	0.01	0.8	0.8	0.11	0.01	0.01	0.01	0.01	0.01			
T27W	13/12/2012		0.172	0.001	3.08	0.0002	0.0005	0.01	0.008	0.317	0.0011	921	0.0453	0.0001	0.0093	0.0009	0.002	0.005	0.010	7.79	33700	122	4.65	0.004	0.1	68	26	21	0.09	0.02	0.9	0.9	0.08	0.01	0.01	0.01	0.01	0.01			
T28W	13/12/2012		0.088	0.001	3.18	0.0002	0.0005	0.01	0.007	0.155	0.0006	970	0.0342	0.0001	0.0086	0.0007	0.002	0.005	0.008	7.82	34000	123	5.20	0.004	0.1	60	26	23	0.23	0.01	0.8	0.8	0.10	0.01	0.01	0.01	0.01				
Pore Waters																																									
T07P	13/12/2012		14.00	0.0064	3.34	0.0002	0.0320	0.01	0.047	16.80	0.0442	972	0.299	0.0001	0.0119	0.0160	0.002	0.005	0.156	7.71	33700	-119	2.34	0.004	---	---	30	40	1.08	0.98	7.5	7.5	1.90	0.01	0.01	0.01	0.01				
T08P	13/12/2012		44.80	0.0192	3.17	0.0024	0.1000	0.01	0.248	71.00	0.1470	960	1.04	0.0001	0.0234	0.0443	0.004	0.016	1.460	7.71	32800	-124	2.45	0.004	0.1	482	10	20	0.39	0.07	3.2	3.2	0.46	0.01	0.01	0.01	0.01				
T29P	18/12/2012		1.930	0.0042	3.08	0.0002	0.0059	0.01	0.011	4.420	0.0147	884	0.148	0.0001	0.0106	0.0035	0.002	0.005	0.043	7.89	33600	-155	3.68	0.004	---	---	3	<1	0.18	0.10	1.4	1.4	1.06	0.01	0.01	0.01	0.01				
T30P	18/12/2012		0.518	0.0024	3.27	0.0002	0.0012	0.01	0.004	0.813	0.0058	944	0.229	0.0001	0.0092	0.0015	0.002	0.005	0.018	7.63	33500	-144	2.78	0.004	0.1	90	<1	<1	0.18	0.16	1.2	1.2	1.54	0.01	0.01	0.01	0.01				
T31P	18/12/2012		15.20	0.0102	3.37	0.0004	0.0372	0.01	0.055	21.20	0.1120	1000	0.544	0.0001	0.0115	0.0141	0.002	0.006	0.275	7.59	32500	-120	3.65	0.004	---	---	<1	<1	0.86	0.44	6.3	6.3	3.82	0.01	0.01	0.01	0.01				
T32P	18/12/2012		8.550	0.0048	3.29	0.0002	0.0223	0.01	0.031	12.60	0.0519	961	0.481	0.0001	0.0095	0.0092	0.002	0.005	0.160	7.61	32800	-177	3.02	0.004	---	---	<1	<1	0.38	0.15	2.1	2.1	1.38	0.01	0.01	0.01	0.01				

Table 15: Surface Water and Pore Water Analytical Results - BTEX, MAHs and TPH

Definitions: LOR (Limits of reporting), FWG (Freshwater Guidelines) for slightly - moderately disturbed systems, MEPG (Marine Ecosystem Protection Guidelines) for slightly - moderately disturbed systems, DoH (Domestic Non-potable Groundwater Use)

Notes: Guideline values have in the first instance been reported from DEC 2010 'Assessment Levels for Soil, Sediment and Water' where no guidance is given ANZECC/ARMCANZ 2000 Freshwater and Marine WQ Guidelines Chapter 3 values have been adopted

All results expressed as mg/L

denotes <LOR

Sample ID	Date Sampled	Trigger	BTEX						MAHs								TPH					
			Benzene	Ethyl Benzene	meta,para-Xylene	ortho-Xylene	Toluene	Xylenes	1,2,4-Trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-Butylbenzene	n-Propylbenzene	p-Isopropyltoluene	sec-Butylbenzene	Styrene	tert-Butylbenzene	C06-9	C10-14	C15-28	C29-36	C10-C36
		DoH	0.01	0.003	0.02	0.02	0.025	0.02	NG	NG	NG	NG	NG	NG	NG	0.004	NG	NG	NG	NG	NG	
		MEPG	0.50	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	
		FWG	0.95	NG	0.2	0.35	NG	0.2	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	
		LOR	0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.05	0.05
Surface Waters																						
T01W	13/12/2012		0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.08	0.1	0.05	0.08
T02W	13/12/2012		0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.05	0.05
T25W	13/12/2012		0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.05	0.05
T26W	13/12/2012		0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.05	0.05
T27W	13/12/2012		0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.05	0.05
T28W	13/12/2012		0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.05	0.05
Pore Waters																						
T07P	13/12/2012		0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.32	0.32
T08P	13/12/2012		0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.30	0.30
T29P	18/12/2012		0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.06	0.06
T30P	18/12/2012		0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.05	0.05
T31P	18/12/2012		0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.05	0.05
T32P	18/12/2012		0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.05	0.05

Table 16: Surface Water and Pore Water Analytical Results - OC and OP Pesticides

Definitions: LOR (Limits of reporting), FWG (Freshwater Guidelines) for slightly - moderately disturbed systems, MEPG (Marine Ecosystem Protection Guidelines) for slightly - moderately disturbed systems, DoH (Domestic Non-potable Groundwater Use)

Notes: Guideline values have in the first instance been reported from DEC 2010 'Assessment Levels for Soil, Sediment and Water' where no guidance is given ANZECC/ARMCANZ 2000 Freshwater and Marine WQ Guidelines Chapter 3 values have been adopted

All results expressed as mg/L

denotes <LOR

Sample ID	Date Sampled	Trigger	OCs																											
			Aldrin	Aldrin +Dieldrin	Alpha-BHC	Beta-BHC	Chlordane	cis-Chlordane	DDD	DDD + DDE + DDT	DDE	DDT	Delta-BHC	Dieldrin	Endosulfan (sum)	Endosulphan I	Endosulphan II	Endosulphan Sulfate	Endrin	Endrin Aldehyde	Endrin Ketone	gamma-BHC (Lindane)	HCB	Heptachlor	Heptachlor Epoxide	Methoxychlor	Oxychlorane	trans-Chlordane		
			DoH	NG	0.003	NG	NG	0.01	NG	NG	NG	NG	0.2	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	0.003	0.003	NG	NG	NG
			MEPG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	0.00004	NG	NG	NG	NG	NG	NG	NG	NG	NG
			FWG	NG	NG	NG	NG	0.00003	NG	NG	NG	NG	0.000006	NG	NG	NG	NG	NG	NG	NG	0.00001	NG	NG	NG	NG	0.00001	NG	NG	NG	NG
LOR	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001	0.00001	0.00001	0.00001		
Surface Waters																														
T01W	13/12/2012		0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.000189	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001	0.00001	0.00001	0.00001	
T02W	13/12/2012		0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.000194	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001	0.00001	0.00001	0.00001	
T25W	13/12/2012		0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.000189	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001	0.00001	0.00001	0.00001	
T26W	13/12/2012		0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00019	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001	0.00001	0.00001	0.00001	
T27W	13/12/2012		0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00019	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001	0.00001	0.00001	0.00001	
T28W	13/12/2012		0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00019	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001	0.00001	0.00001	0.00001	
Pore Waters																														
T07P	13/12/2012		0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00019	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001	0.00001	0.00001	0.00001	
T08P	13/12/2012		0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00019	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001	0.00001	0.00001	0.00001	
T29P	18/12/2012		0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001	0.00001	0.00001	0.00001	
T30P	18/12/2012		0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001	0.00001	0.00001	0.00001	
T31P	18/12/2012		0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	
T32P	18/12/2012		0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	
OPs																														
Sample ID	Date Sampled	Trigger	Azinphos Methyl	Bromophos Ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Monocrotophos	Parathion	Parathion-methyl	Pirimphos-ethyl	Prothiofos									
			DoH	NG	NG	NG	0.010	NG	NG	0.001	NG	NG	0.05	NG	NG	NG	NG	NG	0.01	NG	NG	NG	NG							
			MEPG	NG	NG	NG	NG	0.009	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	0.000004	NG	NG	NG	NG						
			FWG	NG	NG	NG	NG	0.010	NG	NG	0.00001	NG	0.00015	NG	NG	NG	0.00005	NG	0.000004	NG	NG	NG	NG	NG						
			LOR	0.0001	0.0001	0.0001	0.0001	0.00005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001						
Surface Waters																														
T01W	13/12/2012		0.0001	0.0001	0.0001	0.0001	0.00005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001								
T02W	13/12/2012		0.0001	0.0001	0.0001	0.0001	0.00005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001								
T25W	13/12/2012		0.0001	0.0001	0.0001	0.0001	0.00005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001								
T26W	13/12/2012		0.0001	0.0001	0.0001	0.0001	0.00005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001								
T27W	13/12/2012		0.0001	0.0001	0.0001	0.0001	0.00005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001								
T28W	13/12/2012		0.0001	0.0001	0.0001	0.0001	0.00005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001								
Pore Waters																														
T07P	13/12/2012		0.0001	0.0001	0.0001	0.0001	0.00005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001								
T08P	13/12/2012		0.0001	0.0001	0.0001	0.0001	0.00005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001								
T29P	18/12/2012		0.0001	0.0001	0.0001	0.0001	0.00005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001								
T30P	18/12/2012		0.0001	0.0001	0.0001	0.0001	0.00005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001								
T31P	18/12/2012		0.0001	0.0001	0.0001	0.0001	0.00005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001								
T32P	18/12/2012		0.0001	0.0001	0.0001	0.0001	0.00005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001								

Table 17: Surface Water and Pore Water Analytical Results - PAHs, PCBs and Phenols

Definitions: LOR (Limits of reporting), FWG (Freshwater Guidelines) for slightly - moderately disturbed systems, MEPG (Marine Ecosystem Protection Guidelines) for slightly - moderately disturbed systems, DoH (Domestic Non-potable Groundwater Use)
Notes: Guideline values have in the first instance been reported from DEC 2010 'Assessment Levels for Soil, Sediment and Water' where no guidance is given ANZECC/ARMCANZ 2000 Freshwater and Marine WQ Guidelines Chapter 3 values have been adopted
All results expressed as mg/L
denotes <LOR

Sample ID	Date Sampled	Trigger	PAHs																	
			Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(ghi)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	Total PAH	
			DoH	NG	NG	NG	NG	0.0001	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
			MEPG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	0.05	NG	NG	NG
			FWG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	0.016	NG	NG	NG
LOR	0.00002	0.00002	0.00002	0.00002	0.000005	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.000005		
Surface Waters																				
T01W	13/12/2012		0.00002	0.00002	0.00002	0.00002	0.000005	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.000005	
T02W	13/12/2012		0.00002	0.00002	0.00002	0.00002	0.000005	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.000005	
T25W	13/12/2012		0.00002	0.00002	0.00002	0.00002	0.000005	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.000005	
T26W	13/12/2012		0.00002	0.00002	0.00002	0.00002	0.000005	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.000005	
T27W	13/12/2012		0.00002	0.00002	0.00002	0.00002	0.000005	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.000005	
T28W	13/12/2012		0.00002	0.00002	0.00002	0.00002	0.000005	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.000005	
Pore Waters																				
T07P	13/12/2012		0.00002	0.00011	0.00015	0.00014	0.000243	0.00020	0.00016	0.00011	0.00015	0.00004	0.00028	0.00002	0.00013	0.00004	0.00006	0.00029	0.0021	
T08P	13/12/2012		0.00002	0.00009	0.00021	0.00012	0.000176	0.00018	0.00011	0.00006	0.00010	0.00002	0.00022	0.00002	0.00008	0.00002	0.00018	0.00046	0.0020	
T29P	18/12/2012		0.00002	0.00002	0.00002	0.00003	0.000047	0.00004	0.00003	0.00002	0.00003	0.00002	0.00005	0.00002	0.00002	0.00003	0.00002	0.00009	0.0004	
T30P	18/12/2012		0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00006	0.00004	0.00004	0.00051	0.00009	0.00020	0.0009	
T31P	18/12/2012		0.00004	0.00007	0.00004	0.00009	0.000144	0.00012	0.00009	0.00005	0.00010	0.00004	0.00016	0.00004	0.00007	0.00005	0.00006	0.00031	0.0013	
T32P	18/12/2012		0.00002	0.00006	0.00003	0.00008	0.000125	0.00012	0.00007	0.00004	0.00007	0.00002	0.00012	0.00002	0.00006	0.00004	0.00004	0.00022	0.0011	

Sample ID	Date Sampled	Trigger	PCBs									Phenols												
			Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Total Polychlorinated biphenyls	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3,4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol		
			DoH	NG	NG	NG	NG	NG	NG	NG	NG	NG	0.2	2	NG	NG	3	NG	NG	NG	NG	NG	0.011	0.4
			MEPG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	0.011	0.4
			FWG	NG	NG	NG	0.0003	NG	0.00001	NG	NG	NG	0.003	0.12	NG	NG	0.34	NG	NG	NG	NG	NG	0.0036	0.32
LOR	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001			
Surface Waters																								
T01W	13/12/2012		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001		
T02W	13/12/2012		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001		
T25W	13/12/2012		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001		
T26W	13/12/2012		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001		
T27W	13/12/2012		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001		
T28W	13/12/2012		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001		
Pore Waters																								
T07P	13/12/2012		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001		
T08P	13/12/2012		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001		
T29P	18/12/2012		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001		
T30P	18/12/2012		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001		
T31P	18/12/2012		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001		
T32P	18/12/2012		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001		

Table 18: Surface Water and Pore Water Analytical Results - Acid Herbicides and Carbamate Pesticides

Definitions: LOR (Limits of reporting), FWG (Freshwater Guidelines) for slightly - moderately disturbed systems, MEPG (Marine Ecosystem Protection Guidelines) for slightly - moderately disturbed systems, DoH (Domestic Non-potable Groundwater Use)
Notes: Guideline values have in the first instance been reported from DEC 2010 'Assessment Levels for Soil, Sediment and Water' where no guidance is given ANZECC/ARMCANZ 2000 Freshwater and Marine WQ Guidelines Chapter 3 values have been adopted
All results expressed as mg/L
denotes <LOR

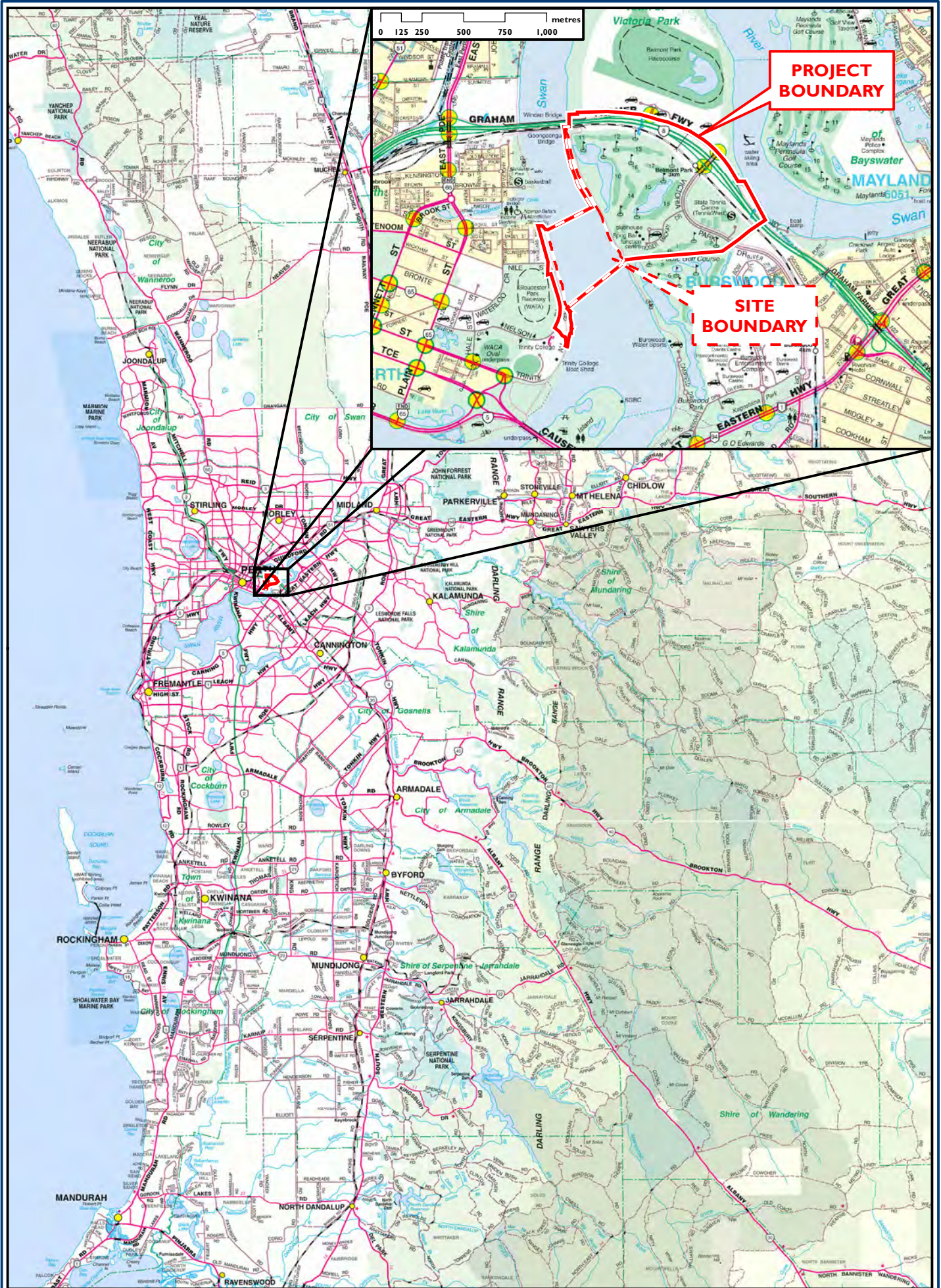
Sample ID	Date Sampled	Trigger	Acid Herbicides															Carbamate Pesticides									
			2,4,5-T	2,4,5-TP (Silvex, Fenopop)	2,4,6-trichlorophenol	2,4-D	2,4-DB	2,6-D	4-chlorophenoxy acetic acid (4-CPA)	Clopyralid	Dicamba	Dichlorprop (2,4-DP)	Fluroxypyr	MCPA	MCPB	Mecoprop (MCPP)	Picloram	Triclopyr	3-Hydroxy Carbofuran	Aldicarb	Bendiocarb	Carbaryl	Carbofuran	Methiocarb	Methomyl	Oxamyl	Thiodicarb
		DoH	0.00005	NG	0.2	0.0001	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	0.005	NG	0.005	NG	NG	
		MEPG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	
		FWG	0.036	NG	0.003	280	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	0.00006	NG	0.0035	NG	NG	
		LOR	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	
Surface Waters																											
T01W	13/12/2012		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
T02W	13/12/2012		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
T25W	13/12/2012		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
T26W	13/12/2012		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
T27W	13/12/2012		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
T28W	13/12/2012		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Pore Waters																											
T07P	13/12/2012		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
T08P	13/12/2012		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
T29P	18/12/2012		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
T30P	18/12/2012		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
T31P	18/12/2012		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
T32P	18/12/2012		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002

Table 19: Surface Water and Pore Water Analytical Results – VOCs

Definitions: LOR (Limits of reporting), FWG (Freshwater Guidelines) for slightly - moderately disturbed systems, MEPG (Marine Ecosystem Protection Guidelines) for slightly - moderately disturbed systems, DoH (Domestic Non-potable Groundwater Use)
Notes: Guideline values have in the first instance been reported from DEC 2010 'Assessment Levels for Soil, Sediment and Water' where no guidance is given ANZECC/ARMCANZ 2000 Freshwater and Marine WQ Guidelines Chapter 3 values have been adopted
All results expressed as mg/L
denotes <LOR

Sample ID	Date Sampled	Trigger	VOCs																									
			1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropylene	1,1,3-trichlorobenzene	1,1,3-Trichloropropane	1,2,4-trichlorobenzene	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane (EDB)	1,2-dichlorobenzene	1,2-dichloroethane	1,2-Dichloropropane	1,3-dichlorobenzene	1,3-Dichloropropane	1,4-dichlorobenzene	2,2-Dichloropropane	2-Butanone (MEK)	2-Chlorotoluene	2-Hexanone (MBK)	4-Chlorotoluene	4-Methyl-2-pentanone (MIBK)	Bromobenzene	
		DoH	NG	NG	NG	NG	NG	0.3	NG	0.005	NG	0.005	NG	NG	0.001	0.03	NG	0.02	NG	0.003	NG	NG	NG	NG	NG	NG	NG	NG
		MEPG	NG	NG	NG	1.9	NG	NG	NG	NG	0.02	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
		FWG	NG	NG	NG	6.5	NG	NG	NG	0.003	NG	0.085	NG	NG	0.16	NG	NG	0.26	NG	0.06	NG	NG	NG	NG	NG	NG	NG	NG
		LOR	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.05	0.005	0.005	
Surface Water																												
T01W	13/12/2012		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005	
T02W	13/12/2012		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005	
T25W	13/12/2012		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005	
T26W	13/12/2012		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005	
T27W	13/12/2012		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005	
T28W	13/12/2012		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005	
Pore Water																												
T07P	13/12/2012		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005	
T08P	13/12/2012		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005	
T29P	18/12/2012		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005	
T30P	18/12/2012		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005	
T31P	18/12/2012		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005	
T32P	18/12/2012		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005	
Sample ID	Date Sampled	Trigger	VOCs																									
			Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-Dichloropropylene	cis-1,4-Dichloro-2-butene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Hexachloro-1,3-butadiene	Iodomethane	Pentachloroethane	Tetrachloroethene (PCE)	trans-1,2-dichloroethene	trans-1,3-Dichloropropylene	trans-1,4-Dichloro-2-butene	Trichloroethene (TCE)	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
		DoH	NG	NG	NG	NG	NG	0.01	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	0.5	NG	NG	NG	NG	NG	NG	0.003	
		MEPG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	
		FWG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	
		LOR	0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	
Surface Water																												
T01W	13/12/2012		0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	
T02W	13/12/2012		0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	
T25W	13/12/2012		0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	
T26W	13/12/2012		0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	
T27W	13/12/2012		0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	
T28W	13/12/2012		0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	
Pore Water																												
T07P	13/12/2012		0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	
T08P	13/12/2012		0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	
T29P	18/12/2012		0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	
T30P	18/12/2012		0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	
T31P	18/12/2012		0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	
T32P	18/12/2012		0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	

FIGURES







LEGEND

- Project Boundary
- River Boundary
- Stage 3 Site Assessment Area
- Development Stage
- Indicative Pedestrian Bridge Location
- Claisebrook Drain

Job Number: I1214701
 Date: 10.07.13
 Scale: 1:6000 @ A3
 Version: A
 Drafted by: HT
 Source: Cadastre & Orthophoto - Landgate, 2012



Figure 3

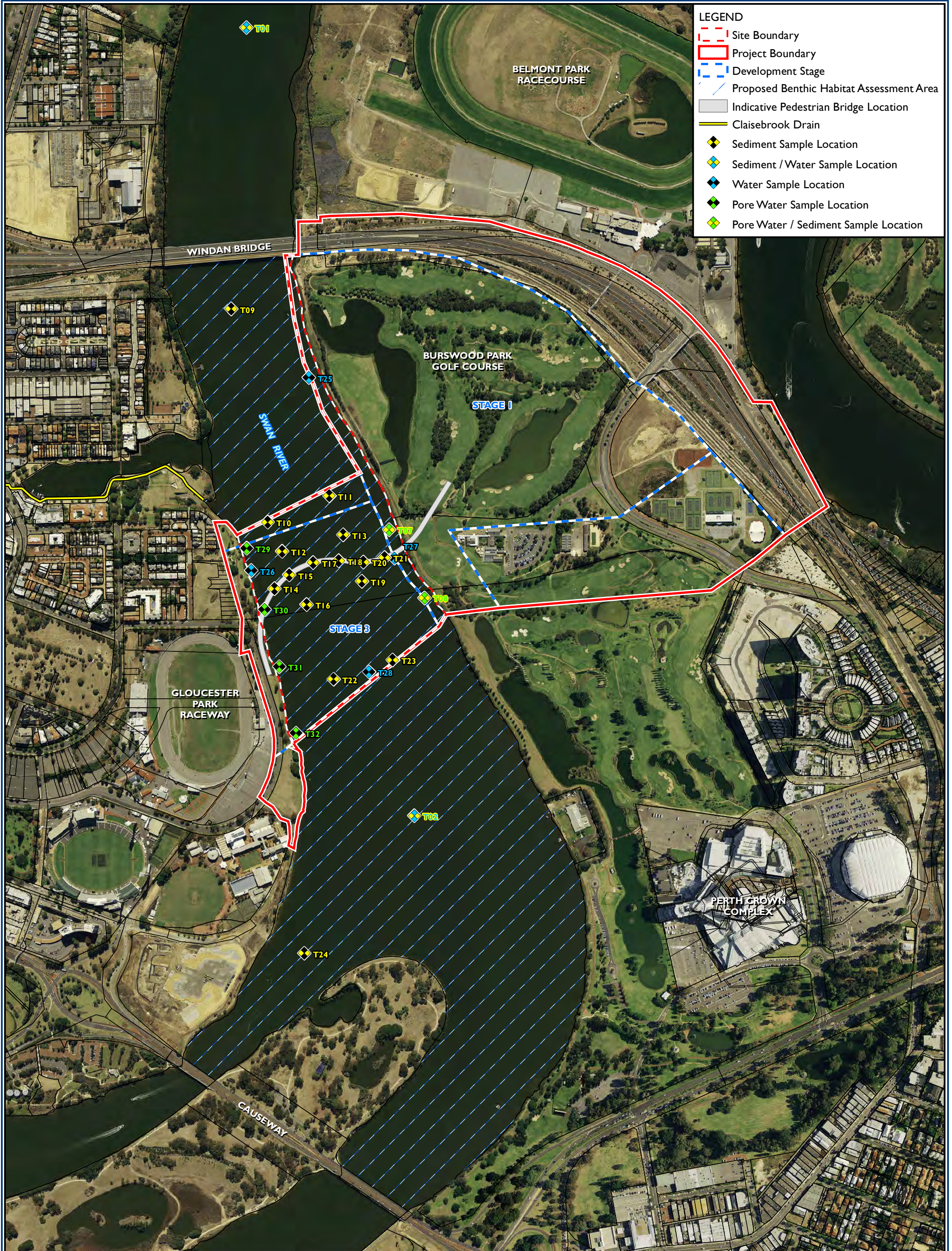
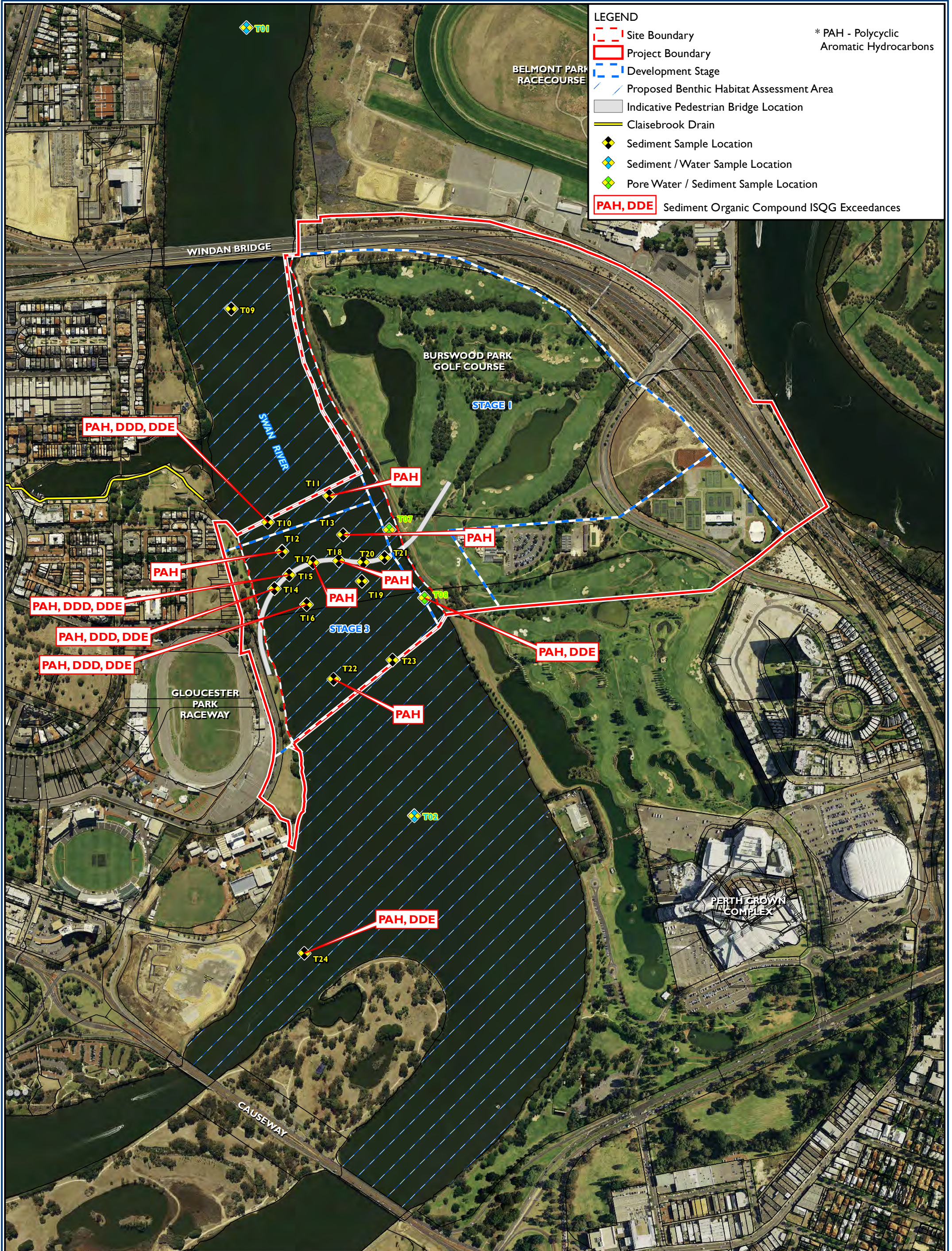
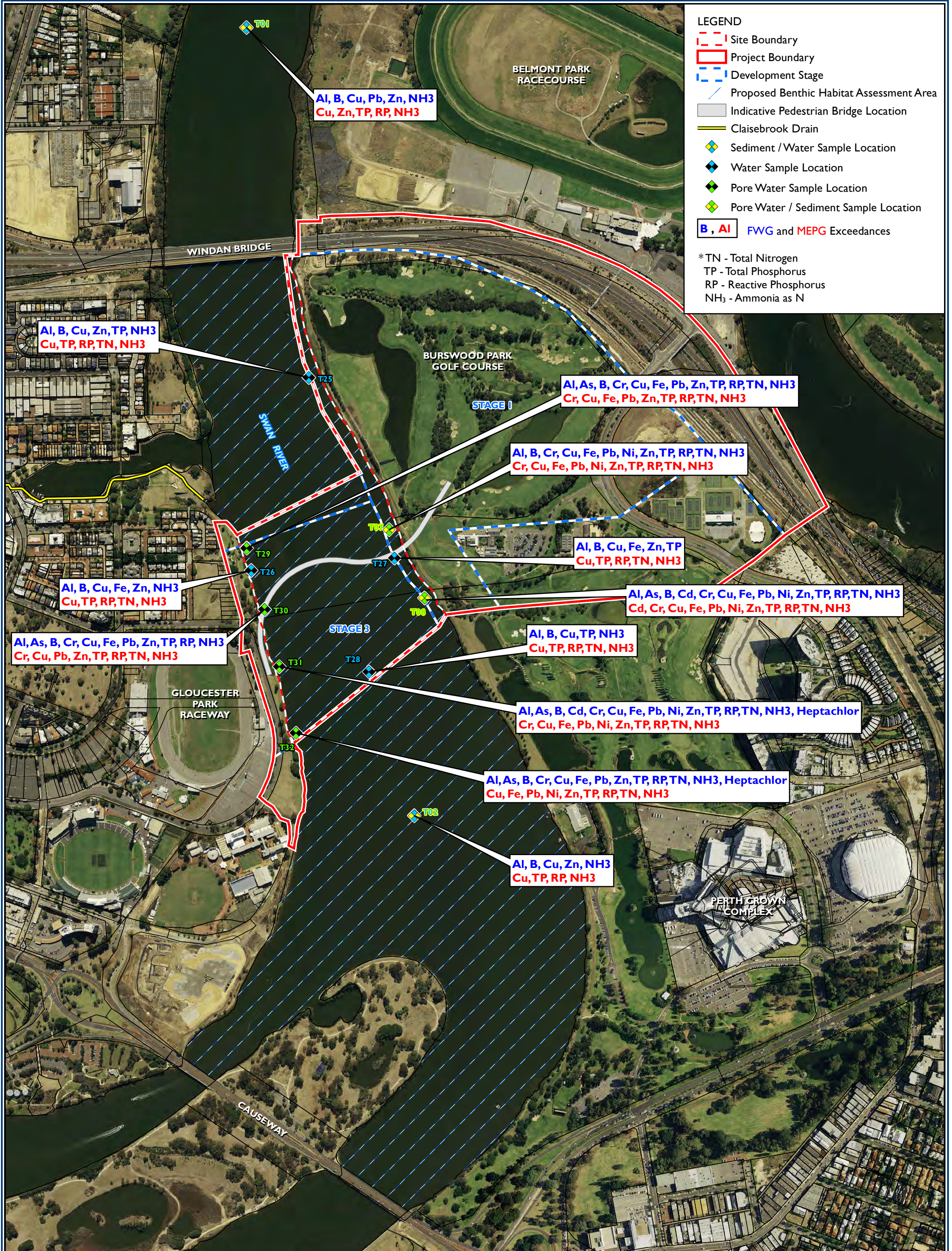


Figure 4

Sampling Locations





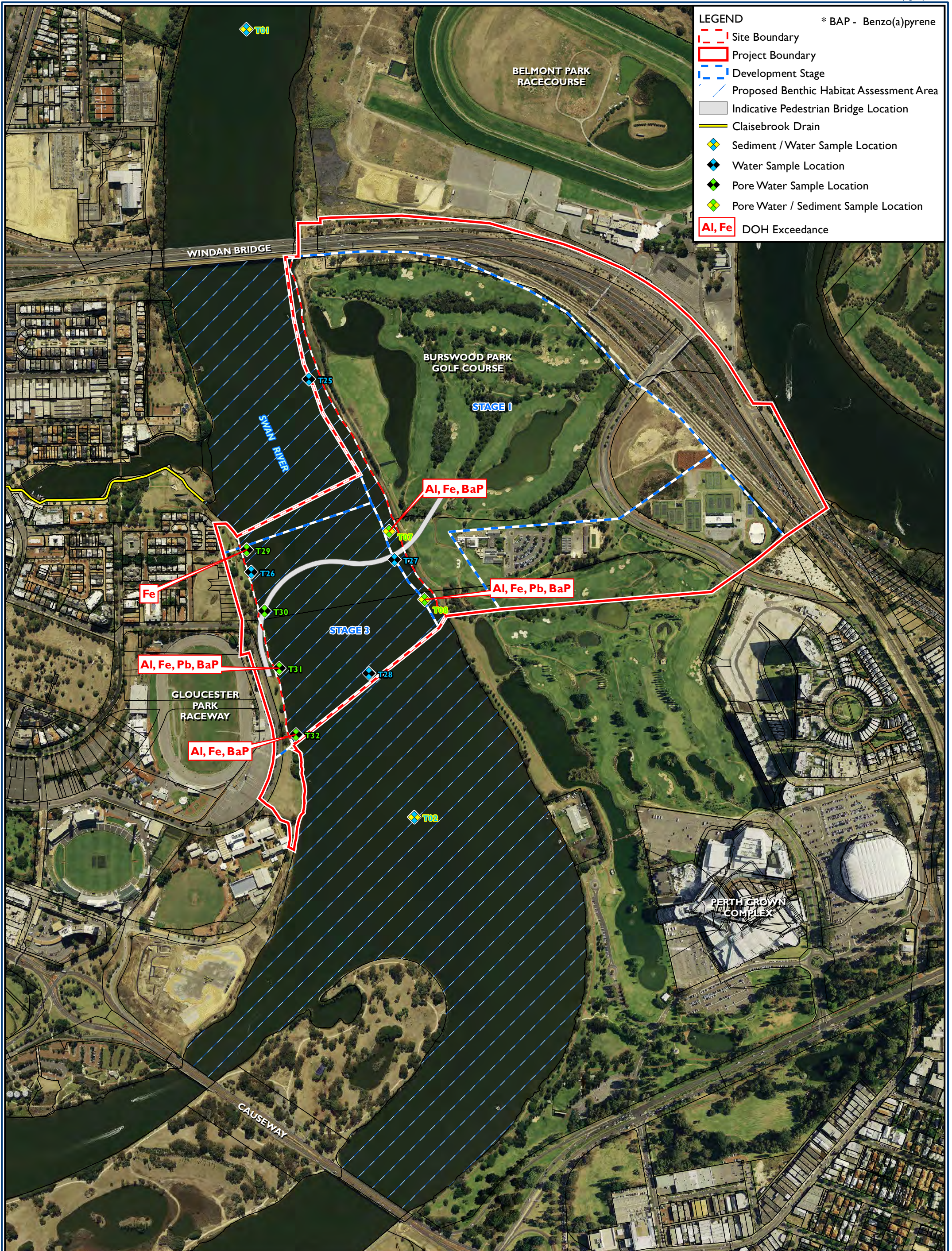
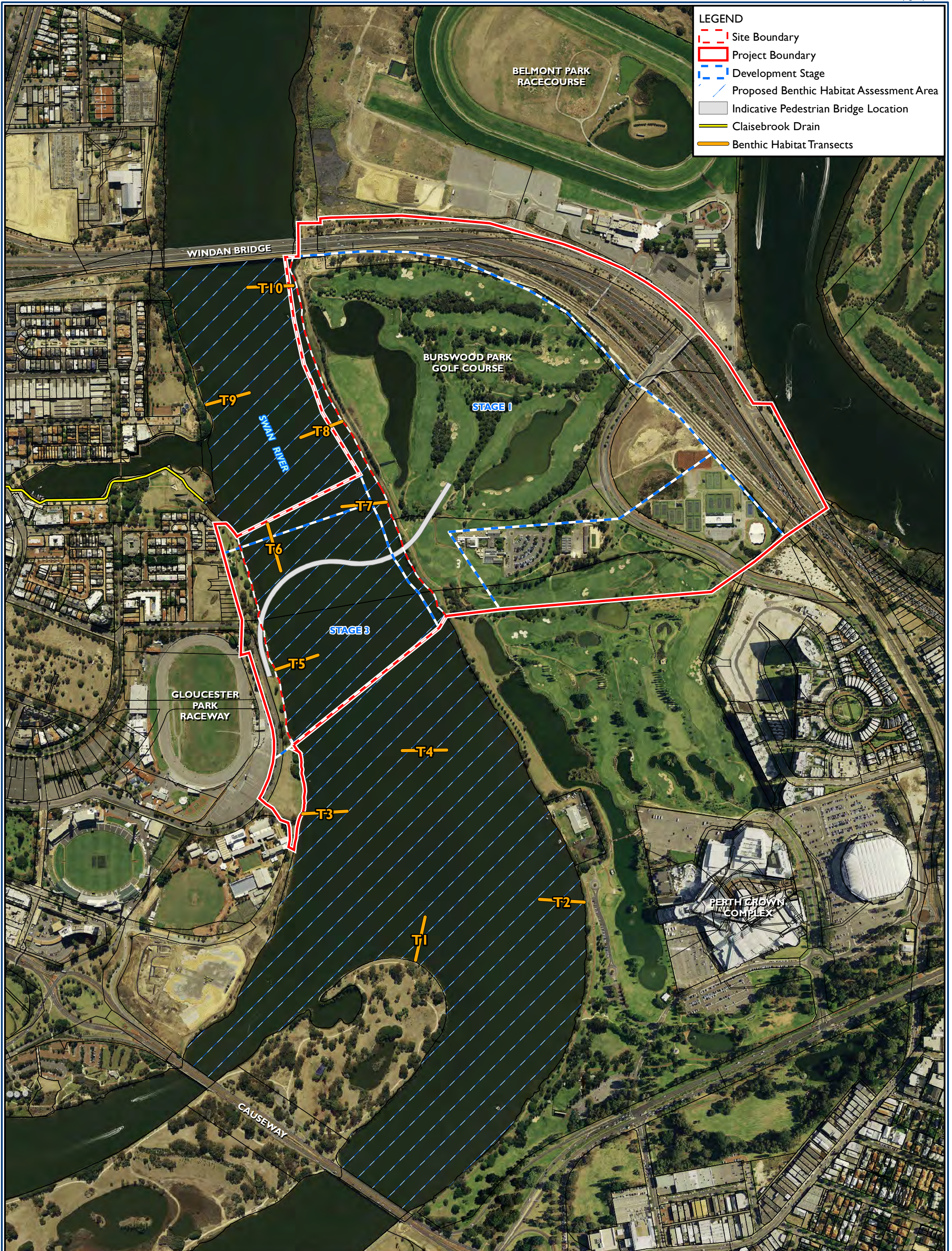


Figure 8
 Surface Water and
 Pore Water DOH Exceedances



PLATES

PLATES



Plate 1: Sediment Corer with One Way Valve and Extension (11 December 2012)



Plate 2: 12v Surface Water Pump (18 December 2012)



Plate 3: Drop Camera with On-board Viewing Monitor (7 January 2013)

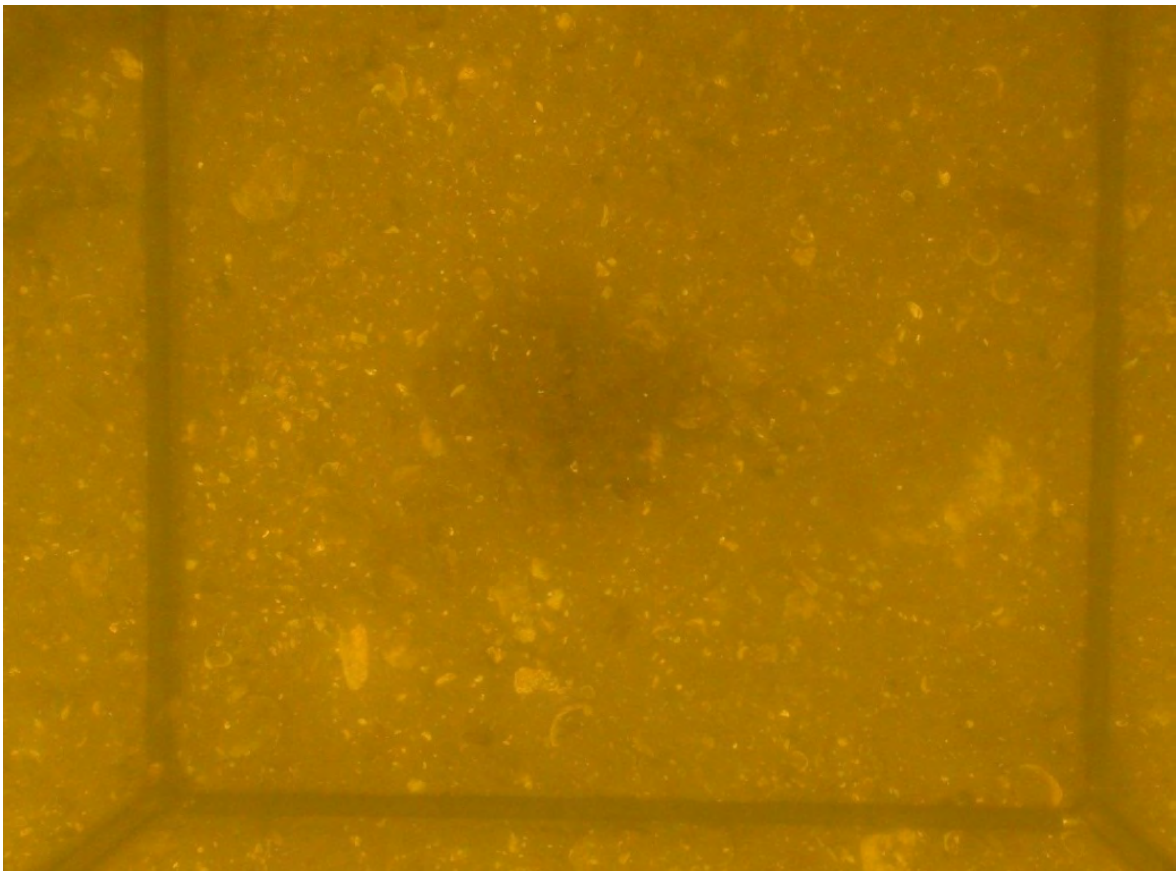


Plate 4: Brown-Grey Sandy Clays with Mottled Shells (0.4 m, Transect 1) (7 January 2013)



Plate 5: Brown–Grey Silty Clays with Detritus Layer (1.5 m, Transect 7) (7 January 2013)

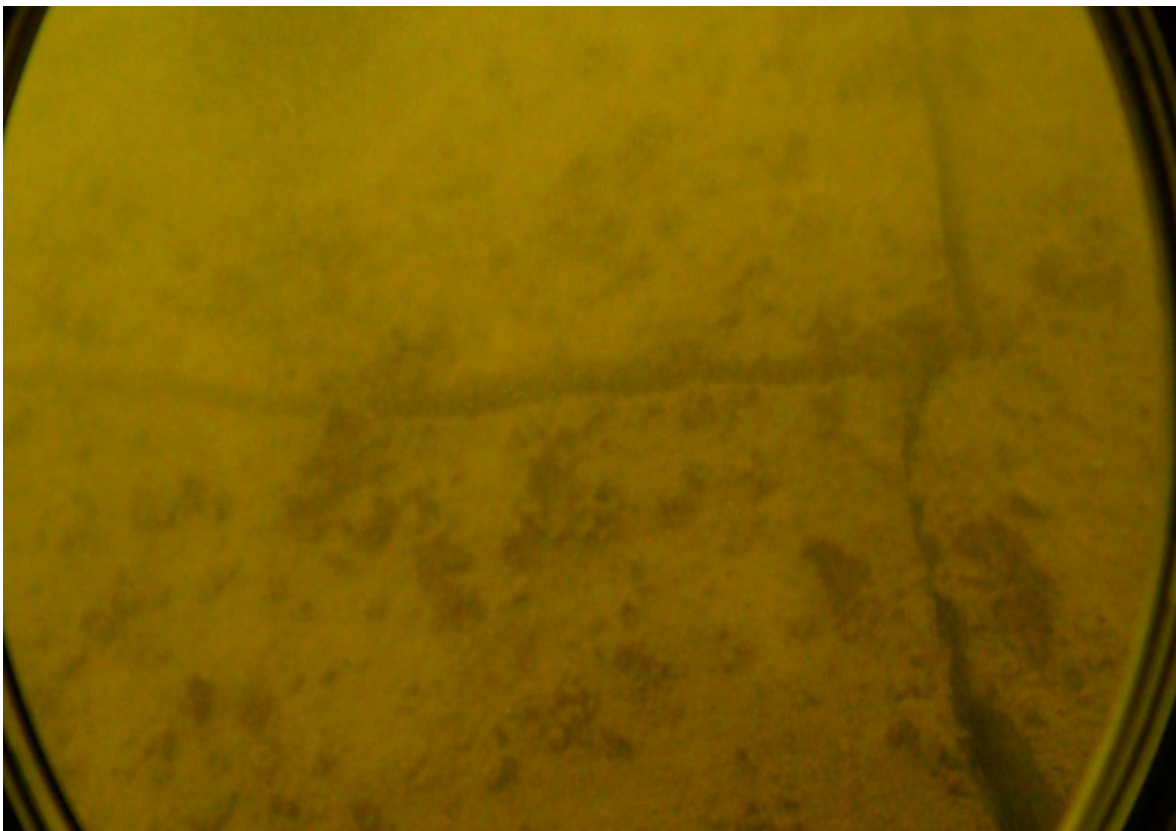


Plate 6: Brown–Grey Silty Clays with Detritus and *Gracilaria Comosa* (2.2 m Transect 4) (7 January 2013)

APPENDIX I

DEC Site Summary Form



Site Summary Form – Contaminated Site Assessment

For completion by the person(s) submitting a report(s) to be assessed by the Department of Environment and Conservation (DEC) as per the information requirements of the DEC *Reporting on Site Assessments (2001)* guideline. Completing this form enables DEC to maintain accurate records for the site.

Please note: A completed site summary form must accompany each report submitted to DEC for assessment. Each box must be filled out appropriately. Please do not write "refer to report" in any section. Copies of all relevant/current Certificates of Title must accompany this form.

Site location details:

Site name (e.g. where site may be known by a common/ business name)

Lot no.	<input type="text" value="N/A (site is Swan River)"/>	House no.	<input type="text" value="-"/>	Street	<input type="text" value="-"/>
			<input type="text" value="-"/>		<input type="text" value="-"/>
			<input type="text" value="-"/>		<input type="text" value="-"/>
			<input type="text" value="-"/>		<input type="text" value="-"/>
			<input type="text" value="-"/>		<input type="text" value="-"/>

Suburb State Postcode

Crown Reserve (if applicable)

Certificate(s) of Title (or equivalent)

Where the subject site comprises of multiple certificates of title, please list all certificates:.....

Where substances have migrated beyond the cadastral boundaries of the subject site, please provide the addresses, relevant Certificates of Title documentation and owners details for all offsite properties impacted (includes soil and/or groundwater), as an attachment to this form.

Is a hard copy of Certificate of Title and associated sketch for all listed sites attached? (Y/N)

WAPC reference no. (where applicable)

Current Owner/Occupier details:

Site owner (Name and address)

Site owner company ACN/ABN

Site occupier (name and address)

Site occupier company ACN/ABN

Site status (at time of reporting):

Proposed land use (e.g. high density residential/child care facility)

Identified substances and relevant media (e.g. benzene in soil and groundwater, xylene in soil only)

Sediments – ISQG – High – Pb, Zn
 Sediments – Asbestos Fibres
 Pore Water – FWG – Metals (Al, As, B, Cd, Cr, Cu, Fe, Pb, Ni, Zn),
 Nutrients, Heptachlor
 Pore Water – MEPG – Metals (Cd, Cr, Cu, Fe, Pb, Ni, Zn) and Nutrients
 Pore Water – DoH - Al, Fe, Pb, Benzo(a)pyrene
 Surface Water – FWG – Metals (Al, B, Cu, Fe, Zn) and total phosphorus and
 ammonia
 Surface Water – MEPG – Metals (Cu and ZN), total and reactive
 phosphorus, total nitrogen and ammonia

Asbestos (Y/N)	<input type="checkbox" value="Y"/>	Health Risk Assessment (Y/N)	<input type="checkbox"/>	Community health concerns identified (Y/N)	<input type="checkbox"/>	Radiological issues (Y/N)	<input type="checkbox"/>
Air quality issues (Y/N)	<input type="checkbox"/>	Past/present landfill (Y/N)	<input type="checkbox"/>	Potential human exposure to identified substances > DEC's Health Investigation Levels or equivalent (Y/N)	<input type="checkbox"/>	Other human health issues (Y/N)	<input type="checkbox"/>

Specify other health issues.....

Where 'yes' is recorded for at least one of the above categories, please submit two copies of the report(s) (relevant documentation) to DEC for referral to the Department of Health (or Radiological Council, in the case of radiological issues)

Are site activities licensed under the *Environmental Protection Act 1986*? (Y/N)

Where laboratory analysis has been undertaken, is the laboratory NATA accredited for all analytes and analytical methodologies used? (Y/N) (If not, why not?)

Community Consultation: (as per the DEC's *Community Consultation (December 2006)* guideline)

Community consultation program commenced/proposed (Y/N)

Are consultation program details (e.g. community consultation plan) provided in attached report (Y/N)

History of Investigation:

Have previous site investigations been undertaken? (Y/N - if yes, please provide details below)

Report title, date and author:

Golder Associates, Rev 0, March 2012. Desktop Study and Review of Previous Environmental Reports – Proposed Perth Major Stadium. Prepared for the Public Transport Authority
 Golder Associates, Rev 0, April 2012. Preliminary Site Investigation Report - Proposed Perth Major Stadium. Prepared for the Public Transport Authority
 Golder Associates, Rev 2, May 2012. Sampling and Analysis Plan and Data Quality Objectives – Environmental Investigation Proposed Burswood Stadium. Prepared for the Public Transport Authority

Declaration:

The information contained in this site summary form is a true representation of the information contained in the attached report(s)/document(s).

Full name (print)

Position held

Signature 

Date

**Please ensure that a hardcopy of the current Certificate(s) of Title and associated sketch accompanies the site summary form.
DEC cannot proceed with the assessment of the report if this information is not provided.**

DEC Registrar Only

Registrar name: Signature:

CoT verified (Y/N) Owner details verified (Y/N) Complete form (Y/N)

Awaiting Classification (Y/N)
Awaiting Re-Classification (Y/N)
Incomplete Form (Y/N)

LWQB Assessment Officer:

Comments/Actions:

Date of data entry:

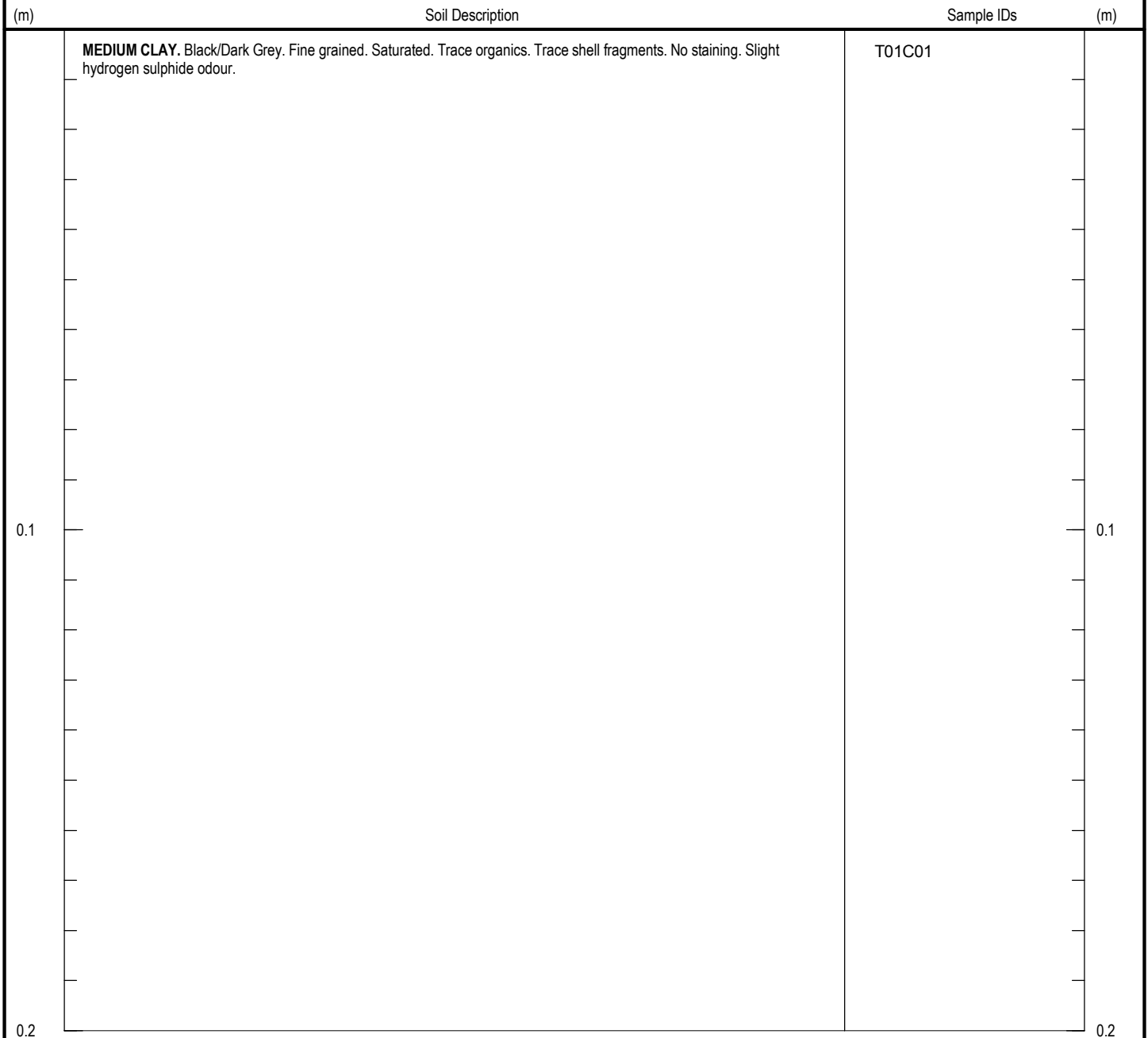
APPENDIX 2

Sediment Sampling Logs



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Fine
SAMPLING LOCATION ID: T01	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394456 NORTHING: 6465330	DEPTH TO WATER: (m): NA
DATE: 10/12/2012	TOTAL DEPTH: (m): 0.20
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: N/A	

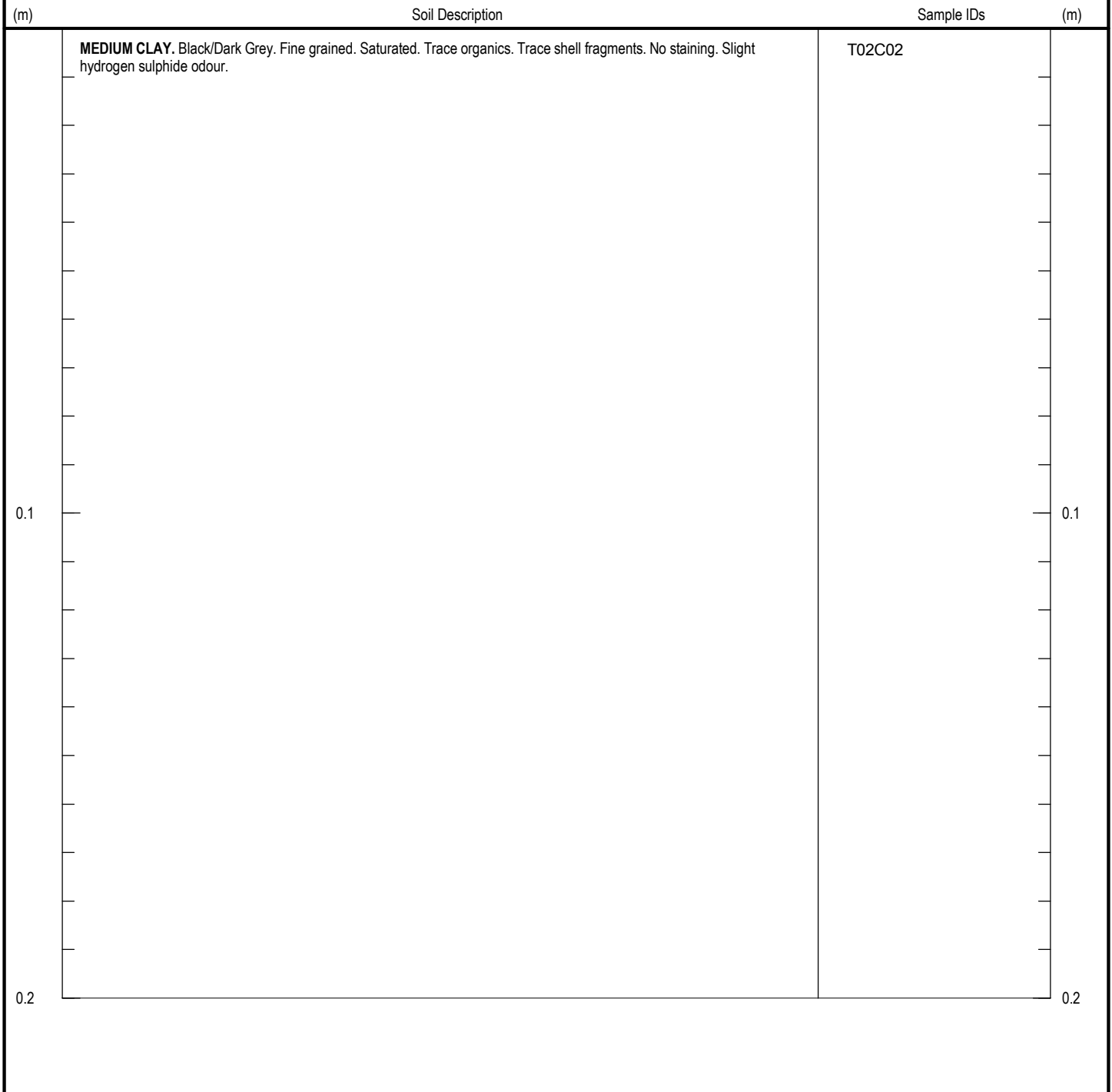


Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Fine
SAMPLING LOCATION ID: T02	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394832 NORTHING: 6463564	DEPTH TO WATER: (m): NA
DATE: 10/12/2012	TOTAL DEPTH: (m): 0.20
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: N/A	

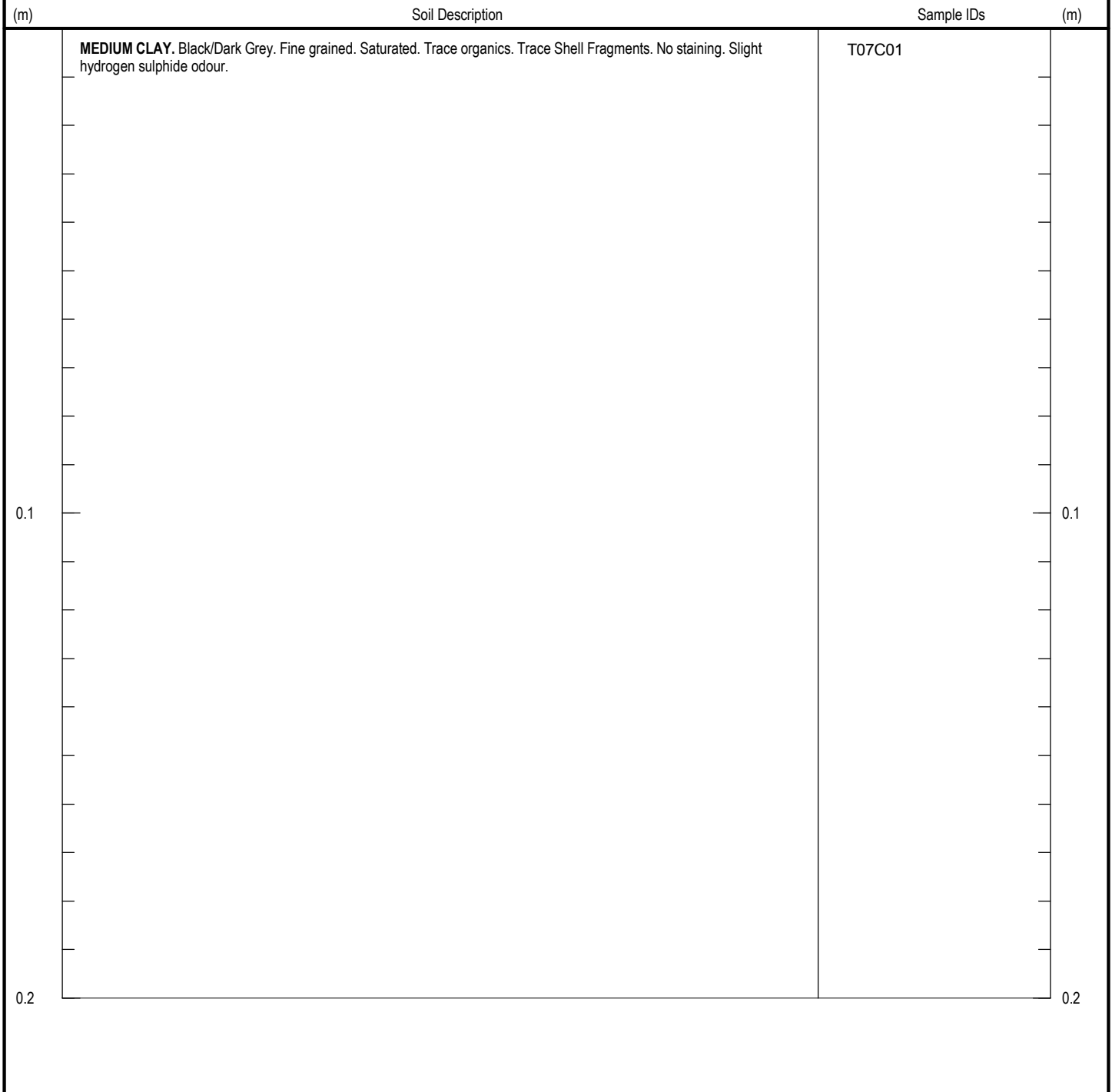


Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Fine
SAMPLING LOCATION ID: T07	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394776 NORTHING: 6464205	DEPTH TO WATER: (m): NA
DATE: 10/12/2012	TOTAL DEPTH: (m): 0.20
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: N/A	

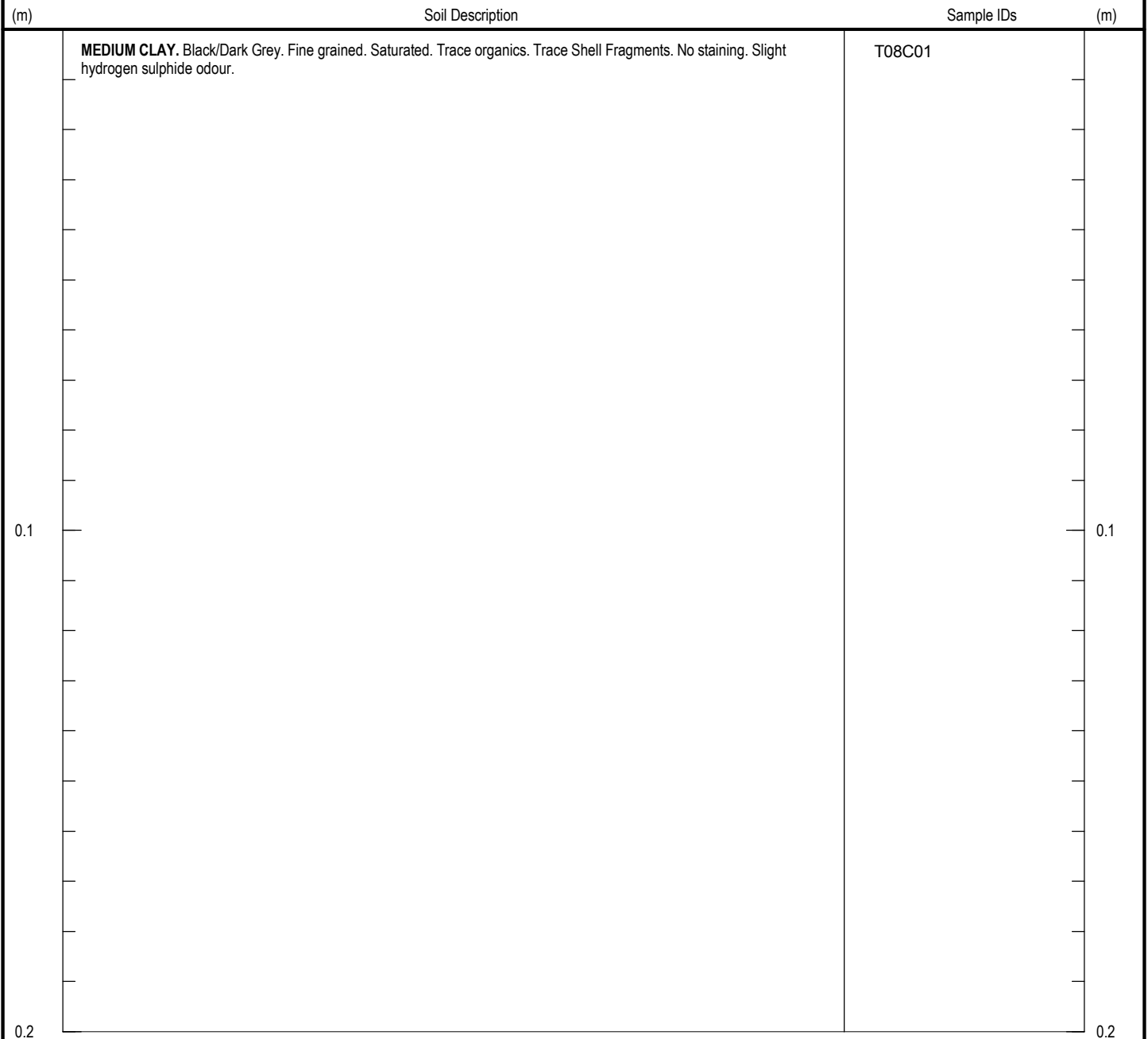


Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Fine
SAMPLING LOCATION ID: T08	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394855 NORTHING: 6464052	DEPTH TO WATER: (m): NA
DATE: 10/12/2012	TOTAL DEPTH: (m): 0.20
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: N/A	

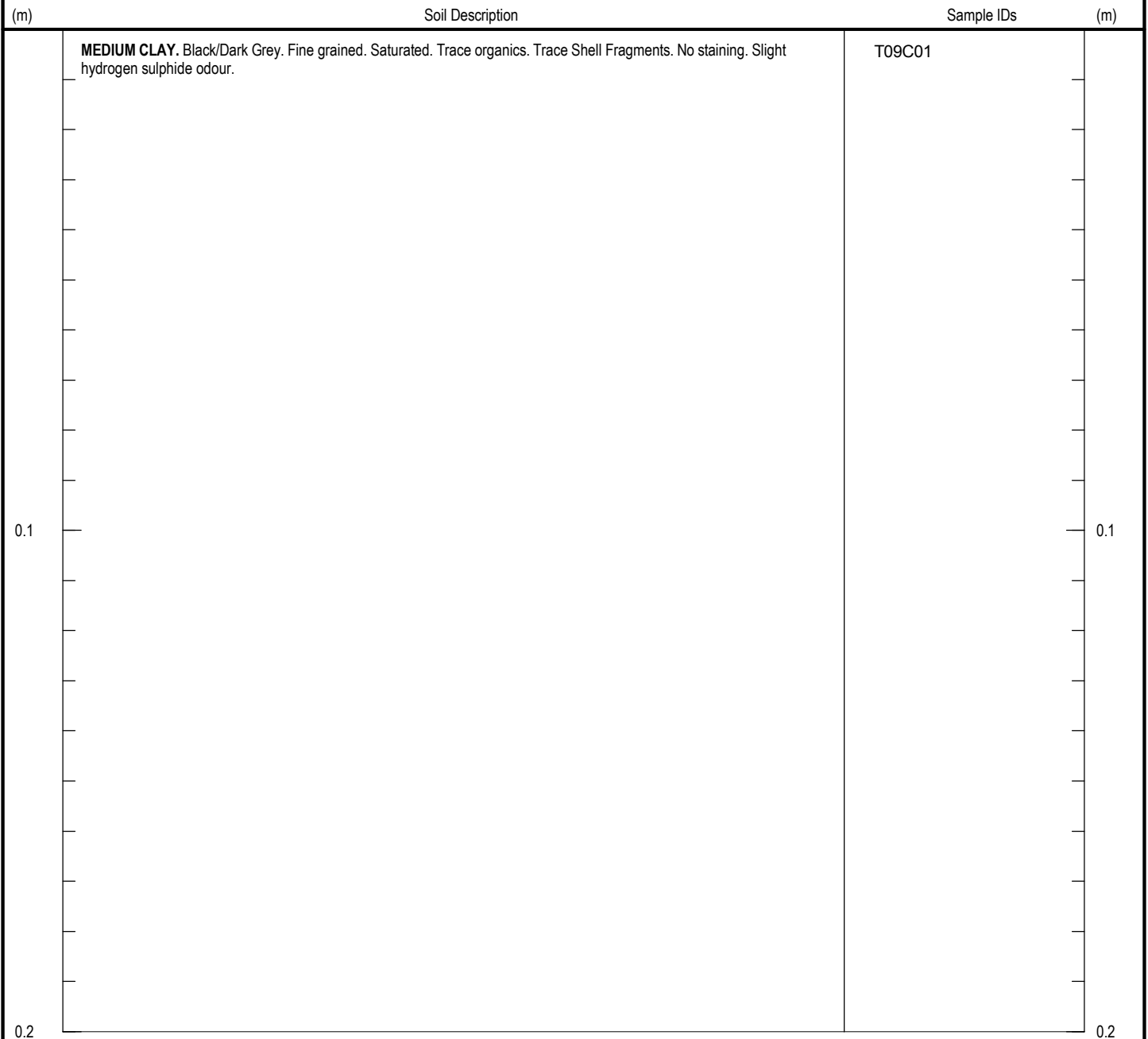


Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Fine
SAMPLING LOCATION ID: T09	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394421 NORTHING: 6464700	DEPTH TO WATER: (m): NA
DATE: 10/12/2012	TOTAL DEPTH: (m): 0.20
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: N/A	

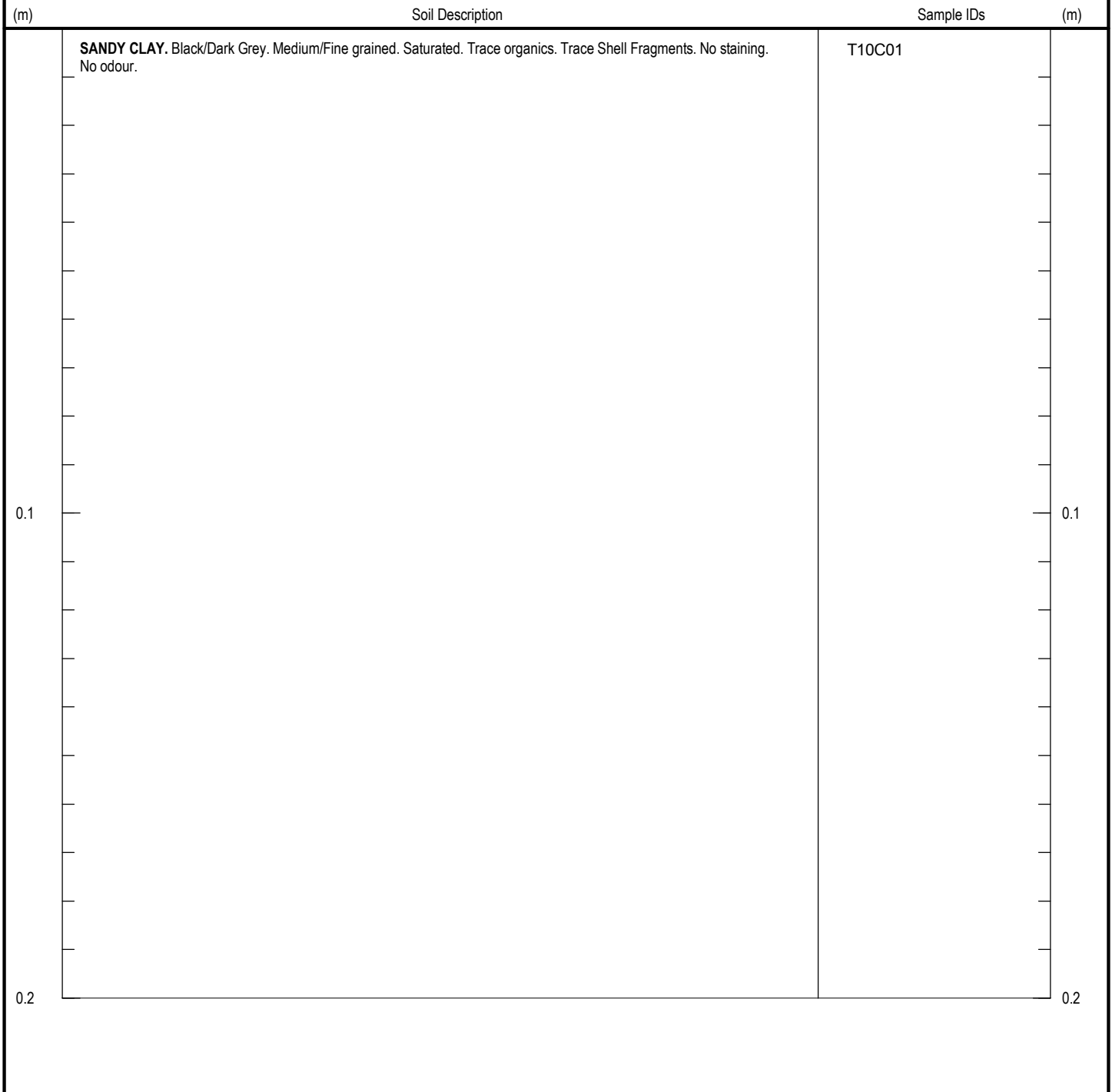


Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Stormy
SAMPLING LOCATION ID: T10	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394521 NORTHING: 6464171	DEPTH TO WATER: (m): NA
DATE: 11/12/2012	TOTAL DEPTH: (m): 0.20
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: N/A	

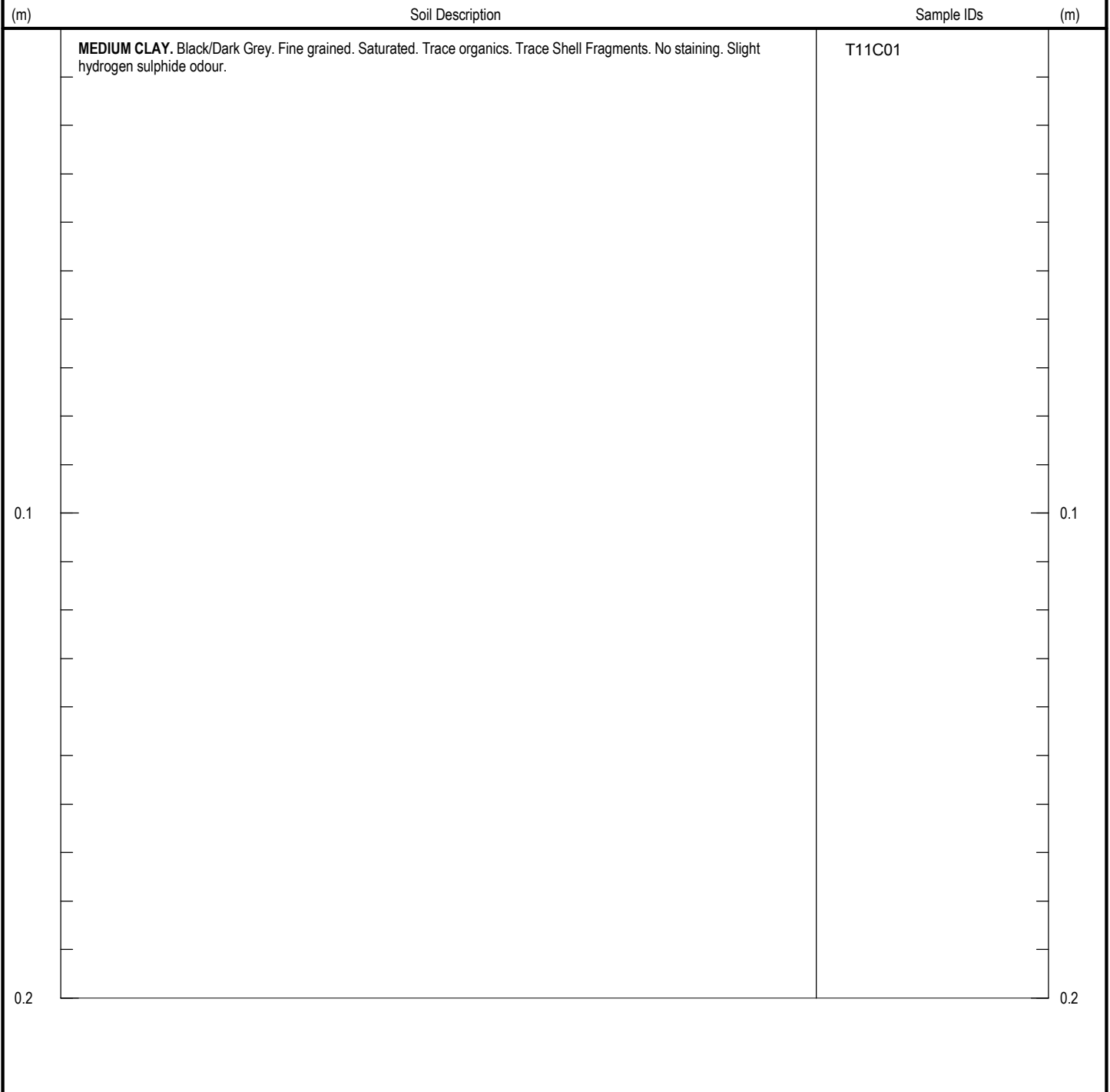


Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Fine
SAMPLING LOCATION ID: T11	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394659 NORTHING: 6464222	DEPTH TO WATER: (m): NA
DATE: 10/12/2012	TOTAL DEPTH: (m): 0.20
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: N/A	



Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Stormy
SAMPLING LOCATION ID: T12	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394560 NORTHING: 6464086	DEPTH TO WATER: (m): NA
DATE: 11/12/2012	TOTAL DEPTH: (m): 0.20
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: N/A	

(m)	Soil Description	Sample IDs	(m)
	SANDY CLAY. Black/Dark Grey. Medium/Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. No odour.	T12C01	
0.1			0.1
0.2			0.2

Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Fine
SAMPLING LOCATION ID: T13	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394691 NORTHING: 6464134	DEPTH TO WATER: (m): NA
DATE: 10/12/2012	TOTAL DEPTH: (m): 0.50
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: N/A	

(m)	Soil Description	Sample IDs	(m)
	MEDIUM CLAY. Black/Dark Grey. Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. Slight hydrogen sulphide odour.	T13C01	
0.1			0.1
0.2			0.2
0.3			0.3
0.4			0.4
0.5			0.5

Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Stormy
SAMPLING LOCATION ID: T14	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394534 NORTHING: 6463980	DEPTH TO WATER: (m): NA
DATE: 11/12/2012	TOTAL DEPTH: (m): 1.00
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: Duplicate(TZC01), Triplicate (TZC01), Blank and Rinse	

(m)	Soil Description	Sample IDs	(m)
0.1	SANDY CLAY. Black/Dark Grey. Medium/Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. No odour.	T14C01	0.1
0.2	SANDY CLAY. Dark Grey/Grey. Medium/Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. No odour.	T14C02	0.2
0.3			0.3
0.4			0.4
0.5	SANDY CLAY. Dark Grey/Grey. Medium/Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. No odour.	T14C03	0.5
0.6			0.6
0.7			0.7
0.8			0.8
0.9			0.9
1.0			1.0

Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Stormy
SAMPLING LOCATION ID: T15	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394576 NORTHING: 6464033	DEPTH TO WATER: (m): NA
DATE: 11/12/2012	TOTAL DEPTH: (m): 0.50
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: N/A	

(m)	Soil Description	Sample IDs	(m)
0.1	SILTY CLAY. Dark Grey/Grey. Medium/Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. No odour.	T15C01	0.1
0.2	SANDY CLAY. Dark Grey/Grey. Medium/Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. No odour.	T15C02	0.2
0.3			0.3
0.4			0.4
0.5			0.5

Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Stormy
SAMPLING LOCATION ID: T16	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394615 NORTHING: 6463967	DEPTH TO WATER: (m): NA
DATE: 11/12/2012	TOTAL DEPTH: (m): 0.20
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: N/A	

(m)	Soil Description	Sample IDs	(m)
	MEDIUM CLAY. Dark Grey/Grey. Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. Slight hydrogen sulphide odour.	T16C01	
0.1			0.1
0.2			0.2

Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Stormy
SAMPLING LOCATION ID: T17	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394645 NORTHING: 6464022	DEPTH TO WATER: (m): NA
DATE: 11/12/2012	TOTAL DEPTH: (m): 0.50
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: Duplicate(TZC02), Triplicate (TZCC02)	

(m)	Soil Description	Sample IDs	(m)
0.1	MEDIUM CLAY. Black/Dark Grey. Medium/Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. Slight hydrogen sulphide odour.	T17C01	0.1
0.2		T17C02	0.2
0.3			0.3
0.4			0.4
0.5			0.5

Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Stormy
SAMPLING LOCATION ID: T18	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394674 NORTHING: 6464066	DEPTH TO WATER: (m): NA
DATE: 11/12/2012	TOTAL DEPTH: (m): 1.00
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: N/A	

(m)	Soil Description	Sample IDs	(m)
0.1	MEDIUM CLAY. Black/Dark Grey. Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. Slight hydrogen sulphide odour.	T18C01	0.1
0.2	MEDIUM CLAY. Black/Dark Grey. Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. Slight hydrogen sulphide odour.	T18C02	0.2
0.3			0.3
0.4			0.4
0.5	MEDIUM CLAY. Black/Dark Grey. Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. Slight hydrogen sulphide odour.	T18C03	0.5
0.6			0.6
0.7			0.7
0.8			0.8
0.9			0.9
1.0			1.0

Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Stormy
SAMPLING LOCATION ID: T19	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394740 NORTHING: 6464016	DEPTH TO WATER: (m): NA
DATE: 11/12/2012	TOTAL DEPTH: (m): 0.50
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: N/A	

(m)	Soil Description	Sample IDs	(m)
0.1	MEDIUM CLAY. Black/Dark Grey. Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. Slight hydrogen sulphide odour.	T19C01	0.1
0.2	MEDIUM CLAY. Black/Dark Grey. Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. Slight hydrogen sulphide odour.	T19C02	0.2
0.3			0.3
0.4			0.4
0.5			0.5

Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Stormy
SAMPLING LOCATION ID: T20	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394743 NORTHING: 6464059	DEPTH TO WATER: (m): NA
DATE: 11/12/2012	TOTAL DEPTH: (m): 0.50
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: Duplicate - ASS (TZA01) and Elutriate (TZA01)	

(m)	Soil Description	Sample IDs	(m)
0.1	MEDIUM CLAY. Black/Dark Grey. Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. Slight hydrogen sulphide odour.	T20C01	0.1
0.2	MEDIUM CLAY. Black/Dark Grey. Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. Slight hydrogen sulphide odour.	T20C02	0.2
0.3			0.3
0.4			0.4
0.5			0.5

Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Fine
SAMPLING LOCATION ID: T21	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394780 NORTHING: 6464101	DEPTH TO WATER: (m): NA
DATE: 10/12/2012	TOTAL DEPTH: (m): 0.20
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: N/A	

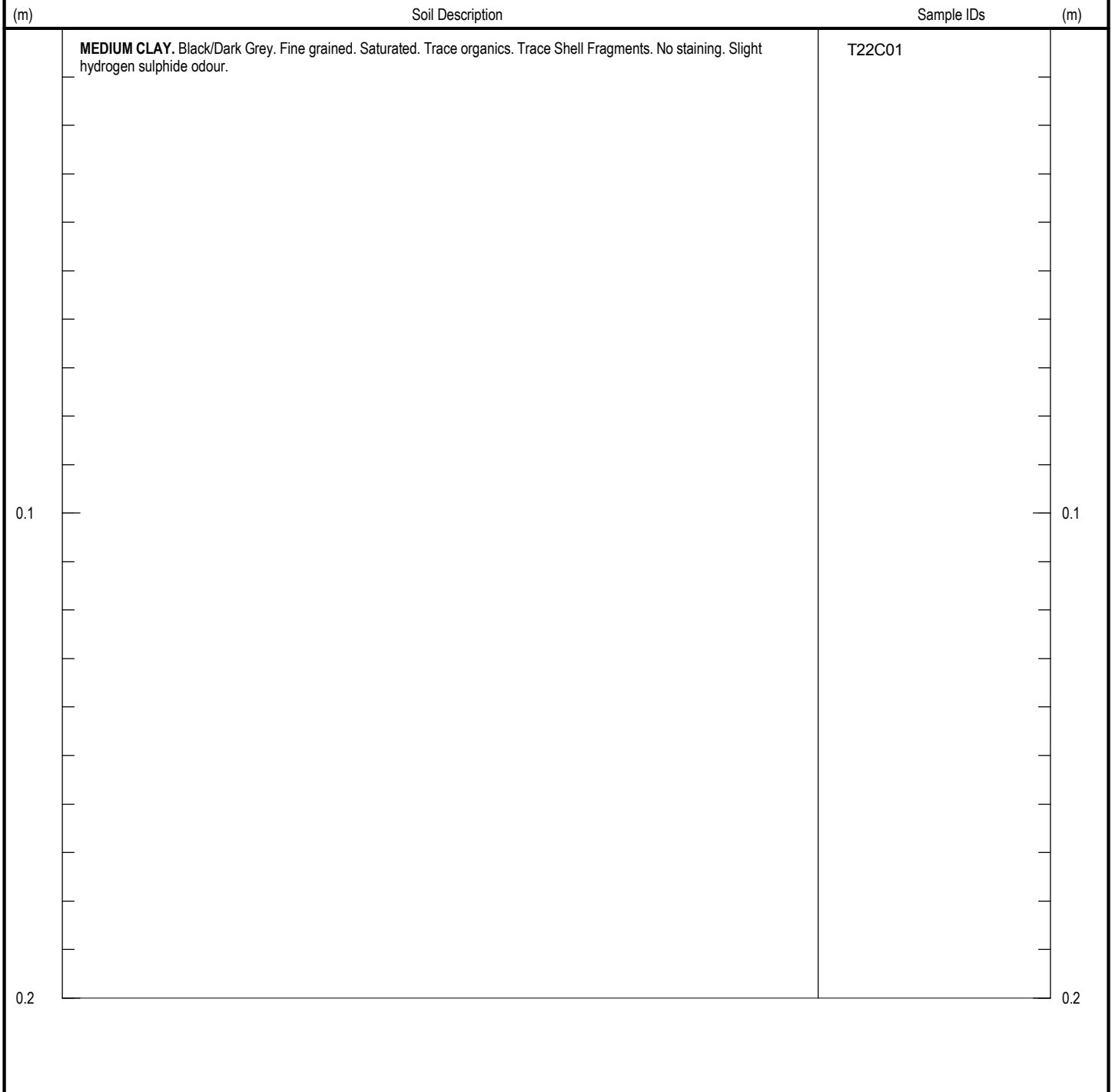
(m)	Soil Description	Sample IDs	(m)
	MEDIUM CLAY. Black/Dark Grey. Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. Slight hydrogen sulphide odour.	T21C01	
0.1			0.1
0.2			0.2

Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Stormy
SAMPLING LOCATION ID: T22	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394651 NORTHING: 6463870	DEPTH TO WATER: (m): NA
DATE: 11/12/2012	TOTAL DEPTH: (m): 0.20
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: N/A	



Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Stormy
SAMPLING LOCATION ID: T23	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394783 NORTHING: 6463914	DEPTH TO WATER: (m): NA
DATE: 11/12/2012	TOTAL DEPTH: (m): 0.20
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: N/A	

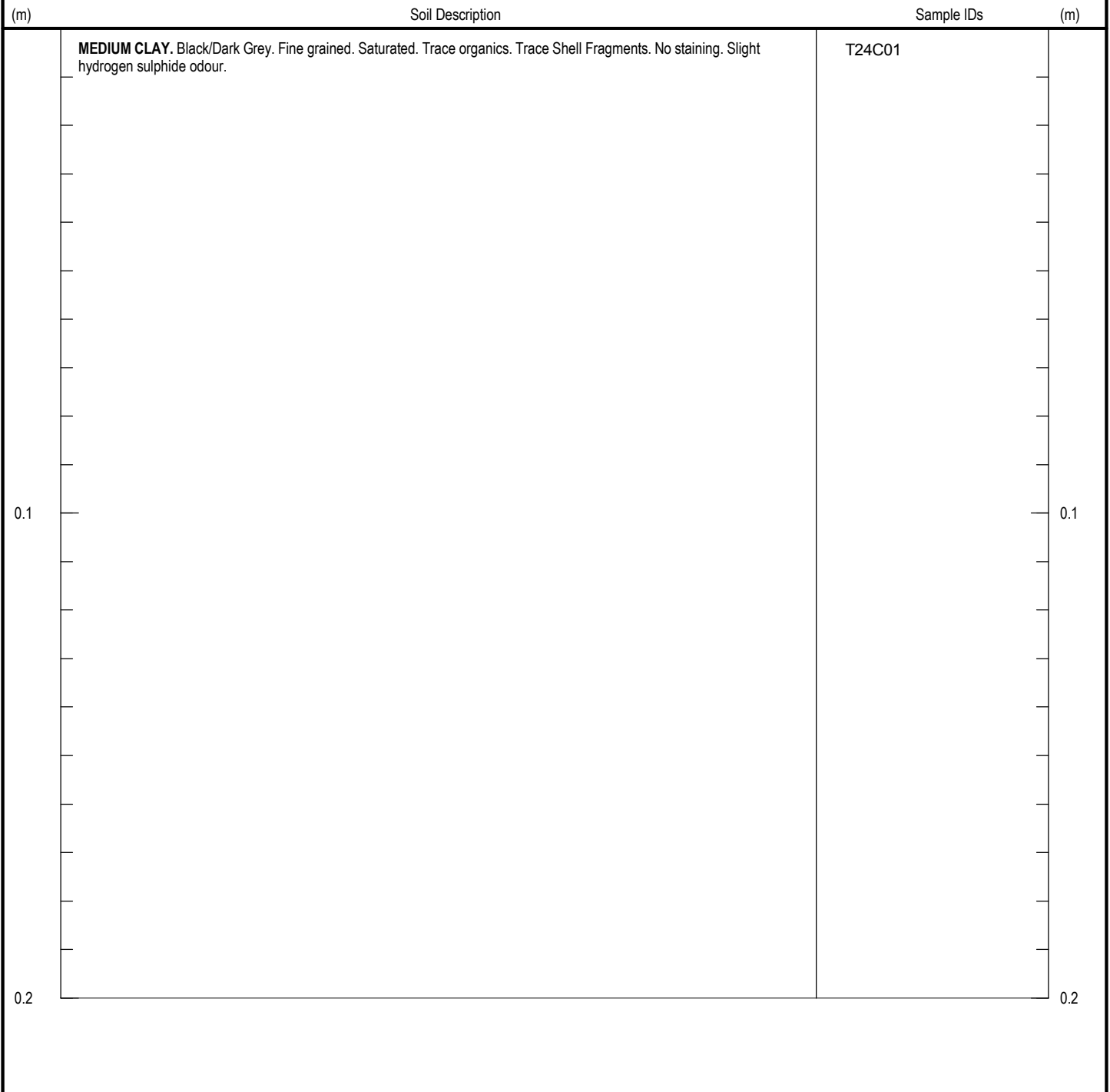
(m)	Soil Description	Sample IDs	(m)
	MEDIUM CLAY. Black/Dark Grey. Fine grained. Saturated. Trace organics. Trace Shell Fragments. No staining. Slight hydrogen sulphide odour.	T23C01	
0.1			0.1
0.2			0.2

Further Comments: .



SEDIMENT PROFILE LOG

PROJECT NUMBER: I12147	WEATHER: Stormy
SAMPLING LOCATION ID: T24	METHOD: Push Corer
SITE NAME: Burswood	REFUSAL: No
SAMPLING AREA: Swan River	FILL PRESENT: No
EASTING: 394586 NORTHING: 6463256	DEPTH TO WATER: (m): NA
DATE: 11/12/2012	TOTAL DEPTH: (m): 0.20
SCIENTIST(S): JA	STORAGE: Ice and Eskie
QA/QC SAMPLE IDs: N/A	



Further Comments: .

APPENDIX 3

Pore Water Sampling Logs



PORE WATER SAMPLING LOG

Project Number:	I12147	Scientist(s):	JA
Sample Location:	T07	Recovery Method:	Peristaltic Pump
Site Name:	Burswood	Storage/Preservation:	Ice and Eskie
Sampling Area:	Swan River	0.45 micron Filtering Used:	No
Easting:	394776	Northing:	6464205
Date:	13/12/2012	Purge Volume:	()
QA/QC Sample IDs:	N/A		

Interval	Units	Appearance	Colour	Temp (C°)	pH	E.C. (uS/cm)	Redox (mV)	D.O. (ppm)
0.75	Litres	Very Turbid	Brown	24.3	7.71	33700	-119	2.34

Comments:



PORE WATER SAMPLING LOG

Project Number: I12147	Scientist(s): JA
Sample Location: T08	Recovery Method: Peristaltic Pump
Site Name: Burswood	Storage/Preservation: Ice and Eskie
Sampling Area: Swan River	0.45 micron Filtering Used: No
Easting: 394855 Northing: 6464052	Purge Volume: ()
Date: 13/12/2012	
QA/QC Sample IDs: N/A	

Interval	Units	Appearance	Colour	Temp (C°)	pH	E.C. (uS/cm)	Redox (mV)	D.O. (ppm)
0.75	Litres	Very Turbid	Brown	25.4	7.71	32800	-124	2.45

Comments:



PORE WATER SAMPLING LOG

Project Number:	I12147	Scientist(s):	JA
Sample Location:	T29	Recovery Method:	Peristaltic Pump
Site Name:	Burswood	Storage/Preservation:	Ice and Eskie
Sampling Area:	Swan River	0.45 micron Filtering Used:	No
Easting:	394457	Northing:	6464164
Date:	18/12/2012	Purge Volume:	()
QA/QC Sample IDs:	TPZ (Duplicate), TPZZ (Triplicate)		

Interval	Units	Appearance	Colour	Temp (C°)	pH	E.C. (uS/cm)	Redox (mV)	D.O. (ppm)
0.75	Litres	turbid	brown	23.8	7.89	33600	-155	3.68

Comments:



PORE WATER SAMPLING LOG

Project Number:	I12147	Scientist(s):	JA
Sample Location:	T30	Recovery Method:	Peristaltic Pump
Site Name:	Burswood	Storage/Preservation:	Ice and Eskie
Sampling Area:	Swan River	0.45 micron Filtering Used:	No
Easting:	394496	Northing:	6464027
Date:	18/12/2012	Purge Volume:	()
QA/QC Sample IDs:	N/A		

Interval	Units	Appearance	Colour	Temp (C°)	pH	E.C. (uS/cm)	Redox (mV)	D.O. (ppm)
0.75	Litres	Very Turbid	Brown	23.9	7.63	33500	-144	2.78

Comments:



PORE WATER SAMPLING LOG

Project Number:	I12147	Scientist(s):	JA
Sample Location:	T31	Recovery Method:	Peristaltic Pump
Site Name:	Burswood	Storage/Preservation:	Ice and Eskie
Sampling Area:	Swan River	0.45 micron Filtering Used:	No
Easting:	394529	Northing:	6463898
Date:	18/12/2012	Purge Volume:	()
QA/QC Sample IDs:	N/A		

Interval	Units	Appearance	Colour	Temp (C°)	pH	E.C. (uS/cm)	Redox (mV)	D.O. (ppm)
0.75	Litres	Very Turbid	Brown	23.6	7.59	32500	-120	3.65

Comments:



PORE WATER SAMPLING LOG

Project Number:	I12147	Scientist(s):	JA
Sample Location:	T32	Recovery Method:	Peristaltic Pump
Site Name:	Burswood	Storage/Preservation:	Ice and Eskie
Sampling Area:	Swan River	0.45 micron Filtering Used:	No
Easting:	394567	Northing:	6463750
Date:	18/12/2012	Purge Volume:	()
QA/QC Sample IDs:	N/A		

Interval	Units	Appearance	Colour	Temp (C°)	pH	E.C. (uS/cm)	Redox (mV)	D.O. (ppm)
0.75	Litres	Turbid	Brown	23.4	7.61	32800	-177	3.02

Comments:

APPENDIX 4

Instrument Calibration Logs



MULTIPARAMETER METER CALIBRATION RECORD

Project Number: 112147

Model Number:

Site Name: BWI

Serial Number: Various

Date	pH10		pH7		pH4		EC(1413us/cm)		Temp (C)		DO (ppm)		Scientist
	pre	cal	pre	cal	pre	cal	pre	cal	pre	cal	pre	cal	
13/12/2012	10.03	10	6.98	7	4.91	4.01			21.3	21.5	0	9.45	JA
18/12/2012	9.98	10.1	7.02	7	4.96	4			21.2	21.8	0	9.68	JA

APPENDIX 5

Surface Water Sampling Logs



SURFACEWATER SAMPLING LOG

Project Number: I12147	Date: 13/12/2012
Sample Location: T01	Scientist(s): JA/AJ
Site Name: Burswood	QA/QC Sample IDs: NA
Sampling Area: Swan River	Recovery Method: 12V Pump
Easting: 394456 Northing: 6465330	Storage/Preservation: Ice and Eskie
	0.45 micron Filtering Used: No

Depth	Appearance	Colour	Temp (deg C)	pH	E.C. (uS/cm)	Redox (mV)	D.O. (ppm)
	Moderately Turbid	Brown	24.5	7.58	32900	145	4.55

Comments:



SURFACEWATER SAMPLING LOG

Project Number: I12147	Date: 13/12/2012
Sample Location: T02	Scientist(s): JA/AJ
Site Name: Burswood	QA/QC Sample IDs: Duplicate - TZ, Triplicate - TZZ
Sampling Area: Swan River	Recovery Method: 12V Pump
Easting: 394832 Northing: 6463564	Storage/Preservation: Ice and Eskie
	0.45 micron Filtering Used: No

Depth	Appearance	Colour	Temp (deg C)	pH	E.C. (uS/cm)	Redox (mV)	D.O. (ppm)
	Moderately Turbid	Brown	25	7.49	34100	190	4.69

Comments:



SURFACEWATER SAMPLING LOG

Project Number: I12147	Date: 13/12/2012
Sample Location: T25	Scientist(s): JA
Site Name: Burswood	QA/QC Sample IDs: N/A
Sampling Area: Swan River	Recovery Method: 12v Electric Pump
Easting: 394596 Northing: 6464546	Storage/Preservation: Ice and Eskie
	0.45 micron Filtering Used: No

Depth	Appearance	Colour	Temp (deg C)	pH	E.C. (uS/cm)	Redox (mV)	D.O. (ppm)
	Moderately Turbid	Brown	24.7	7.68	33800	138	4.63

Comments:



SURFACEWATER SAMPLING LOG

Project Number: I12147	Date: 13/12/2012
Sample Location: T26	Scientist(s): JA
Site Name: Burswood	QA/QC Sample IDs: N/A
Sampling Area: Swan River	Recovery Method: 12v Electric Pump
Easting: 394467 Northing: 6464114	Storage/Preservation: Ice and Eskie
	0.45 micron Filtering Used: No

Depth	Appearance	Colour	Temp (deg C)	pH	E.C. (uS/cm)	Redox (mV)	D.O. (ppm)
	Moderately Turbid	Brown	24.6	7.77	33600	130	4.93

Comments:



SURFACEWATER SAMPLING LOG

Project Number: I12147	Date: 13/12/2012
Sample Location: T27	Scientist(s): JA
Site Name: Burswood	QA/QC Sample IDs: N/A
Sampling Area: Swan River	Recovery Method: 12v Electric Pump
Easting: 394788 Northing: 6464142	Storage/Preservation: Ice and Eskie
	0.45 micron Filtering Used: No

Depth	Appearance	Colour	Temp (deg C)	pH	E.C. (uS/cm)	Redox (mV)	D.O. (ppm)
	Moderately Turbid	Brown	24.9	7.79	33700	122	4.65

Comments:



SURFACEWATER SAMPLING LOG

Project Number: I12147	Date: 13/12/2012
Sample Location: T28	Scientist(s): JA
Site Name: Burswood	QA/QC Sample IDs: N/A
Sampling Area: Swan River	Recovery Method: 12v Electric Pump
Easting: 394730 Northing: 6463887	Storage/Preservation: Ice and Eskie
	0.45 micron Filtering Used: No

Depth	Appearance	Colour	Temp (deg C)	pH	E.C. (uS/cm)	Redox (mV)	D.O. (ppm)
	Moderately Turbid	Brown	24.6	7.82	34000	123	5.2

Comments:

APPENDIX 6

Sediment and Elutriate Laboratory Reporting

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: EP1210302	Page	: 1 of 12
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: MR ALAN FOLEY	Contact	: Scott James
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: alan.foley@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: I12147 Burswood Stadium	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 10-DEC-2012
C-O-C number	: ----	Issue Date	: 18-DEC-2012
Sampler	: JA and AJ	No. of samples received	: 2
Site	: Burswood Stadium	No. of samples analysed	: 2
Quote number	: EP/689/12 V4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Agnes Szilagyi	Senior Organic Chemist	Perth Organics
Canhuang Ke	Metals Instrument Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
Scott James	Laboratory Manager	Perth Inorganics



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.

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

- **EK026SF: Poor matrix spike recovery due to sample matrix interference.**
 - **EP074(Volatile analytes): Iodomethane recovery fall outside of ALS Dynamic Control Upper Limits in LCS. However, all samples are <LOR so no further actions required.**
-



Analytical Results

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

Client sample ID

Client sampling date / time

				TZR1	TZB1	----	----	----
				10-DEC-2012 15:00	10-DEC-2012 15:00	----	----	----
Compound	CAS Number	LOR	Unit	EP1210302-001	EP1210302-002	----	----	----
ED093T: Total Major Cations								
Magnesium	7439-95-4	1	mg/L	<1	<1	----	----	----
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	----	----	----
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	----	----	----
Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	----	----	----
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	----	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	----	----	----
Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	----	----	----
Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	----	----	----
Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	0.004	mg/L	<0.004	<0.004	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.02	0.03	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	----	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	<0.01	<0.01	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	<0.1	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	<0.1	<0.1	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				TZR1	TZB1	---	---	---
				10-DEC-2012 15:00	10-DEC-2012 15:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210302-001	EP1210302-002	---	---	---
EK067G: Total Phosphorus as P by Discrete Analyser - Continued								
Total Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	---	---	---
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	---	---	---
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	---	---	---
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	---	---	---
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	---	---	---
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	---	---	---
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	---	---	---
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	---	---	---
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	---	---	---
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	---	---	---
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	---	---	---
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	---	---	---
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	---	---	---
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	---	---	---
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	---	---	---
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	---	---	---
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	---	---	---
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	---	---	---
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	---	---	---
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	---	---	---
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	---	---	---
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	---	---	---
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	---	---	---
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	---	---	---
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	---	---	---
^ Sum of DDD + DDE + DDT	----	0.5	µg/L	<0.5	<0.5	---	---	---
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	---	---	---
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	---	---	---
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TZR1	TZB1	---	---	---
				10-DEC-2012 15:00	10-DEC-2012 15:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210302-001	EP1210302-002	---	---	---
EP068B: Organophosphorus Pesticides (OP) - Continued								
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	---	---	---
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	---	---	---
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	---	---	---
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	---	---	---
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	---	---	---
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	---	---	---
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	---	---	---
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	---	---	---
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	---	---	---
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	---	---	---
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	---	---	---
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	---	---	---
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	---	---	---
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	---	---	---
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	---	---	---
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	---	---	---
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	---	---	---
EP074A: Monocyclic Aromatic Hydrocarbons								
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	---	---	---
Styrene	100-42-5	5	µg/L	<5	<5	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	<2	---	---	---
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	---	---	---
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	---	---	---
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	---	---	---
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	---	---	---
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	---	---	---
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	---	---	---
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	---	---	---
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	---	---	---
EP074B: Oxygenated Compounds								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TZR1	TZB1	---	---	---
				10-DEC-2012 15:00	10-DEC-2012 15:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210302-001	EP1210302-002	---	---	---
EP074B: Oxygenated Compounds - Continued								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	---	---	---
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	---	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	---	---	---
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	---	---	---
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	---	---	---
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	---	---	---
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	---	---	---
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	---	---	---
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	---	---	---
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	---	---	---
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	---	---	---
Chloromethane	74-87-3	50	µg/L	<50	<50	---	---	---
Vinyl chloride	75-01-4	50	µg/L	<50	<50	---	---	---
Bromomethane	74-83-9	50	µg/L	<50	<50	---	---	---
Chloroethane	75-00-3	50	µg/L	<50	<50	---	---	---
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	---	---	---
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	---	---	---
Iodomethane	74-88-4	5	µg/L	<5	<5	---	---	---
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	---	---	---
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	---	---	---
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	---	---	---
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	---	---	---
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	---	---	---
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	---	---	---
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	---	---	---
Trichloroethene	79-01-6	5	µg/L	<5	<5	---	---	---
Dibromomethane	74-95-3	5	µg/L	<5	<5	---	---	---
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	---	---	---
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TZR1	TZB1	---	---	---
				10-DEC-2012 15:00	10-DEC-2012 15:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210302-001	EP1210302-002	---	---	---
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	---	---	---
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	---	---	---
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	---	---	---
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	---	---	---
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	---	---	---
Pentachloroethane	76-01-7	5	µg/L	<5	<5	---	---	---
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	---	---	---
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	---	---	---
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	---	---	---
Bromobenzene	108-86-1	5	µg/L	<5	<5	---	---	---
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	---	---	---
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	---	---	---
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	---	---	---
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	---	---	---
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	---	---	---
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	---	---	---
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	---	---	---
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	---	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	---	---	---
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	---	---	---
Bromoform	75-25-2	5	µg/L	<5	<5	---	---	---
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	---	---	---
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	---	---	---
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	---	---	---
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TZR1	TZB1	---	---	---
				10-DEC-2012 15:00	10-DEC-2012 15:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210302-001	EP1210302-002	---	---	---
EP075(SIM)A: Phenolic Compounds - Continued								
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	---	---	---
4-Chloro-3-Methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	---	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	---	---	---
^ Benzo(a)pyrene TEQ (WHO)	----	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 2010 Draft								
C6 - C10 Fraction	----	20	µg/L	<20	<20	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	----	20	µg/L	<20	<20	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TZR1	TZB1	---	---	---
				10-DEC-2012 15:00	10-DEC-2012 15:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210302-001	EP1210302-002	---	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft - Continued								
>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	---	---	---
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	---	---	---
EP201: Carbamate Pesticides by LCMS								
Oxamyl	23135-22-0	0.2	µg/L	<0.2	<0.2	---	---	---
Methomyl	16752-77-5	0.2	µg/L	<0.2	<0.2	---	---	---
3-Hydroxy Carbofuran	16655-82-6	0.2	µg/L	<0.2	<0.2	---	---	---
Aldicarb	116-06-3	0.2	µg/L	<0.2	<0.2	---	---	---
Bendiocarb	22781-23-3	0.2	µg/L	<0.2	<0.2	---	---	---
Thiodicarb	59669-26-0	0.2	µg/L	<0.2	<0.2	---	---	---
Carbofuran	1563-66-2	0.2	µg/L	<0.2	<0.2	---	---	---
Carbaryl	63-25-2	0.2	µg/L	<0.2	<0.2	---	---	---
Methiocarb	2032-65-7	0.2	µg/L	<0.2	<0.2	---	---	---
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	---	---	---
2,4-DB	94-82-6	10	µg/L	<10	<10	---	---	---
Dicamba	1918-00-9	10	µg/L	<10	<10	---	---	---
Mecoprop	93-65-2	10	µg/L	<10	<10	---	---	---
MCPA	94-74-6	10	µg/L	<10	<10	---	---	---
2,4-DP	120-36-5	10	µg/L	<10	<10	---	---	---
2,4-D	94-75-7	10	µg/L	<10	<10	---	---	---
Triclopyr	55335-06-3	10	µg/L	<10	<10	---	---	---
2,4,5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	---	---	---



Analytical Results

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

Client sample ID

Client sampling date / time

				TZR1	TZB1	---	---	---
				10-DEC-2012 15:00	10-DEC-2012 15:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210302-001	EP1210302-002	---	---	---
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued								
2.4.5-T	93-76-5	10	µg/L	<10	<10	---	---	---
MCPB	94-81-5	10	µg/L	<10	<10	---	---	---
Picloram	1918-02-1	10	µg/L	<10	<10	---	---	---
Clopyralid	1702-17-6	10	µg/L	<10	<10	---	---	---
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	---	---	---
2.6-D	575-90-6	10	µg/L	<10	<10	---	---	---
2.4.6-T	575-89-3	10	µg/L	<10	<10	---	---	---
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	68.6	65.2	---	---	---
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	88.2	75.9	---	---	---
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	89.0	78.4	---	---	---
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	93.0	95.2	---	---	---
Toluene-D8	2037-26-5	0.1	%	100	100	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	88.7	94.8	---	---	---
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	43.2	32.5	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	89.0	70.9	---	---	---
2.4.6-Tribromophenol	118-79-6	0.1	%	88.4	64.5	---	---	---
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	84.3	70.7	---	---	---
Anthracene-d10	1719-06-8	0.1	%	81.6	65.3	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	87.6	72.4	---	---	---
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	98.9	102	---	---	---
Toluene-D8	2037-26-5	0.1	%	95.0	95.6	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	78.7	95.1	---	---	---
EP201S: Carbamate Surrogate								
4-Bromo-3.5-dimethylphenyl-N-methylcarbamate	672-99-1	0.1	%	79.2	93.8	---	---	---
EP202S: Phenoxyacetic Acid Herbicide Surrogate								



Analytical Results

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

Client sample ID

				TZR1	TZB1	---	---	---
				10-DEC-2012 15:00	10-DEC-2012 15:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210302-001	EP1210302-002	---	---	---
EP202S: Phenoxyacetic Acid Herbicide Surrogate - Continued								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	107	106	---	---	---



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	27.4	136.2
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50.0	146.3
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	26.8	153.4
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	62.3	133.9
Toluene-D8	2037-26-5	74.5	124.3
4-Bromofluorobenzene	460-00-4	63.9	118.5
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	67.2
2-Chlorophenol-D4	93951-73-6	29.4	119.5
2,4,6-Tribromophenol	118-79-6	10.0	130.8
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	33.8	130.7
Anthracene-d10	1719-06-8	42.7	126.5
4-Terphenyl-d14	1718-51-0	40.5	142.4
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	60.5	141.2
Toluene-D8	2037-26-5	73.4	126
4-Bromofluorobenzene	460-00-4	59.6	125.3
EP201S: Carbamate Surrogate			
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	65	147
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2,4-Dichlorophenyl Acetic Acid	19719-28-9	64	140

QUALITY CONTROL REPORT

Work Order	: EP1210302	Page	: 1 of 17
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: MR ALAN FOLEY	Contact	: Scott James
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: alan.foley@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: I12147 Burswood Stadium	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Burswood Stadium	Date Samples Received	: 10-DEC-2012
C-O-C number	: ----	Issue Date	: 18-DEC-2012
Sampler	: JA and AJ	No. of samples received	: 2
Order number	: ----	No. of samples analysed	: 2
Quote number	: EP/689/12 V4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Agnes Szilagyi	Senior Organic Chemist	Perth Organics
Canhuang Ke	Metals Instrument Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
Scott James	Laboratory Manager	Perth Inorganics



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.

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 (%)
ED093T: Total Major Cations (QC Lot: 2644729)									
EP1210302-001	TZR1	ED093T: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 2644730)									
EP1210302-001	TZR1	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EP1210337-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.007	0.007	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.014	0.015	0.0	0% - 50%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.071	0.068	3.1	0% - 20%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	5.70	5.46	4.2	0% - 20%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	11.7	11.5	2.0	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2644761)									
EP1210217-010	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP1210302-001	TZR1	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 2649877)									
EP1210272-001	Anonymous	EK026SF: Total Cyanide	57-12-5	0.004	mg/L	0.758	0.726	4.4	0% - 20%
EP1210297-008	Anonymous	EK026SF: Total Cyanide	57-12-5	0.004	mg/L	0.071	0.073	2.8	0% - 50%



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 (%)	
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 2644037)										
EP1210302-001	TZR1	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.02	0.02	0.0	No Limit	
EP1210336-003	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.04	0.04	0.0	No Limit	
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 2642323)										
EP1210319-001	Anonymous	EK057G: Nitrite as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
EP1210321-001	Anonymous	EK057G: Nitrite as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 2644036)										
EP1210302-001	TZR1	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
EP1210320-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	98.4	96.9	1.5	0% - 20%	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 2643513)										
EP1210288-006	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	2.7	1.6	49.3	0% - 50%	
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 2643514)										
EP1210288-006	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.05	0.07	30.5	No Limit	
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 2642324)										
EP1210302-001	TZR1	EK071G: Reactive Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2645652)										
EP1210302-001	TZR1	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit			
EP074B: Oxygenated Compounds (QC Lot: 2645652)										
EP1210302-001	TZR1	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit	
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit	
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit	
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit	
EP074C: Sulfonated Compounds (QC Lot: 2645652)										
EP1210302-001	TZR1	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit	
EP074D: Fumigants (QC Lot: 2645652)										
EP1210302-001	TZR1	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	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 (%)
EP074D: Fumigants (QC Lot: 2645652) - continued									
EP1210302-001	TZR1	EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2645652)									
EP1210302-001	TZR1	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 2645652)									
EP1210302-001	TZR1	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	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 (%)	
EP074F: Halogenated Aromatic Compounds (QC Lot: 2645652) - continued										
EP1210302-001	TZR1	EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit	
EP074G: Trihalomethanes (QC Lot: 2645652)										
EP1210302-001	TZR1	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
EP074H: Naphthalene (QC Lot: 2645652)										
EP1210302-001	TZR1	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2645653)										
EP1210302-001	TZR1	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2645653)										
EP1210302-001	TZR1	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080: BTEXN (QC Lot: 2645653)										
EP1210302-001	TZR1	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit		
EP201: Carbamate Pesticides by LCMS (QC Lot: 2649387)										
EP1210302-001	TZR1	EP201: Oxamyl	23135-22-0	0.2	µg/L	<0.2	<0.2	0.0	No Limit	
		EP201: Methomyl	16752-77-5	0.2	µg/L	<0.2	<0.2	0.0	No Limit	
		EP201: 3-Hydroxy Carbofuran	16655-82-6	0.2	µg/L	<0.2	<0.2	0.0	No Limit	
		EP201: Aldicarb	116-06-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit	
		EP201: Bendiocarb	22781-23-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit	
		EP201: Thiodicarb	59669-26-0	0.2	µg/L	<0.2	<0.2	0.0	No Limit	
		EP201: Carbofuran	1563-66-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit	
		EP201: Carbaryl	63-25-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit	
		EP201: Methiocarb	2032-65-7	0.2	µg/L	<0.2	<0.2	0.0	No Limit	
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2645773)										
EP1210302-001	TZR1	EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	0.0	No Limit	
		EP202-SL: 2,4-DB	94-82-6	10	µg/L	<10	<10	0.0	No Limit	
		EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	<10	0.0	No Limit	
		EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	<10	0.0	No Limit	
		EP202-SL: MCPA	94-74-6	10	µg/L	<10	<10	0.0	No Limit	
		EP202-SL: 2,4-DP	120-36-5	10	µg/L	<10	<10	0.0	No Limit	

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 Work Order : EP1210302
 Client : RPS ENVIRONMENT PTY LTD
 Project : I12147 Burswood Stadium



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 (%)
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2645773) - continued									
EP1210302-001	TZR1	EP202-SL: 2.4-D	94-75-7	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.5-T	93-76-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPB	94-81-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Picloram	1918-02-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.6-D	575-90-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.6-T	575-89-3	10	µg/L	<10	<10	0.0	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 Sample (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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
ED093T: Total Major Cations (QCLot: 2644729)									
ED093T: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----	
EG020T: Total Metals by ICP-MS (QCLot: 2644730)									
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	114	78	116	
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.3	77	109	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.8	78	108	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	80	112	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	102	79	111	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.3	81	109	
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	102	80	112	
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	106	86	118	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	100	80	112	
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	103	75	107	
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	108	84	134	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	104	74	108	
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	103	74	120	
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	104	75	115	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2644761)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	103	82.3	118	
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2649877)									
EK026SF: Total Cyanide	57-12-5	0.004	mg/L	<0.004	0.2 mg/L	99.1	80	127	
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2644037)									
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	101	87	115	
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2642323)									
EK057G: Nitrite as N	----	0.01	mg/L	<0.01	0.5 mg/L	96.1	86	112	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2644036)									
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	108	92	112	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2643513)									
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	93.4	74	130	
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2643514)									
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	87.3	70	130	
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2642324)									
EK071G: Reactive Phosphorus as P	----	0.01	mg/L	<0.01	0.5 mg/L	100	87	115	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2643698)									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2643698) - continued									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	5 µg/L	51.4	13.4	117	
EP068A: Organochlorine Pesticides (OC) (QCLot: 2643697)									
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	91.6	26.9	125	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	85.3	17.1	121	
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	98.3	36	128	
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	93.7	36	124	
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	100	42	128	
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	100	26.5	133	
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	93.7	34	130	
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	105	36	130	
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	109	34	134	
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	98.8	42	124	
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	108	39	127	
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	106	38	134	
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	108	41	133	
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	106	29.6	148	
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	110	40	136	
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	107	38	140	
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	103	30.8	145	
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	97.9	36	132	
EP068: 4,4'-DDT	50-29-3	2.0	µg/L	<2.0	5 µg/L	104	16	142	
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	98.5	32	132	
EP068: Methoxychlor	72-43-5	2.0	µg/L	<2.0	5 µg/L	107	8	154	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2643697)									
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	92.4	28.5	133	
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	101	29	143	
EP068: Monocrotophos	6923-22-4	2.0	µg/L	<2.0	5 µg/L	18.6	4.2	45	
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	79.5	28.4	116	
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	99.4	39	125	
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	102	40	128	
EP068: Parathion-methyl	298-00-0	2.0	µg/L	<2.0	5 µg/L	104	33	131	
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	102	33	137	
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	102	41	127	
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	99.6	43	127	
EP068: Parathion	56-38-2	2.0	µg/L	<2.0	5 µg/L	107	33	131	
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	104	35	125	
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	111	39	135	
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	109	38	128	
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	102	30.4	140	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2643697) - continued									
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	109	40	128	
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	112	38	132	
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	93.2	34	134	
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	105	6.4	158	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2645652)									
EP074: Benzene	71-43-2	1	µg/L	<1	10 µg/L	111	76	120	
EP074: Toluene	108-88-3	2	µg/L	<2	10 µg/L	107	75	121	
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	98.8	74	120	
EP074: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	20 µg/L	99.3	75	119	
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	90.4	74	124	
EP074: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	101	75	119	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	97.5	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	112	72	122	
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	100	73	121	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	100	72	122	
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	104	74	122	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	106	73	121	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	100	73	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	115	70	126	
EP074B: Oxygenated Compounds (QCLot: 2645652)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	100	61	135	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	116	66	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	107	72	126	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	101	70	126	
EP074C: Sulfonated Compounds (QCLot: 2645652)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	116	71	127	
EP074D: Fumigants (QCLot: 2645652)									
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	101	71	129	
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	120	74	124	
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	102	73	127	
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	97.9	70	130	
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	96.5	74	124	
EP074E: Halogenated Aliphatic Compounds (QCLot: 2645652)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	81.5	70	130	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	82.6	73	125	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	86.5	72	128	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	83.1	73	127	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
					Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 2645652) - continued								
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	81.7	74	124
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	89.5	72	130
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	87.9	73	129
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	# 189	42	142
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	104	72	126
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	120	73	125
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	112	76	122
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	98.9	76	124
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	104	74	124
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	91.2	73	129
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	95.3	76	126
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	106	75	125
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	99.7	75	127
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	96.9	74	122
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	107	72	128
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	93.3	74	124
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	----	----	----	----
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	97.6	54	142
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	100	61	135
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	107	66	132
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	88.8	66	130
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	99.0	66	134
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	105	56	140
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	86.2	66	134
EP074F: Halogenated Aromatic Compounds (QCLot: 2645652)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	98.6	78	120
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	98.3	76	122
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	108	75	121
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	111	74	122
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	104	75	121
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	103	75	121
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	104	76	122
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	98.1	68	132
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	102	72	128
EP074G: Trihalomethanes (QCLot: 2645652)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	104	75	125
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	105	73	129
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	95.2	68	132
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	89.8	67	133



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074H: Naphthalene (QCLot: 2645652)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	90.5	60	120	
EP075(SIM)A: Phenolic Compounds (QCLot: 2643700)									
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	25 µg/L	48.7	17.6	57	
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	25 µg/L	91.1	37.6	118	
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	25 µg/L	83.9	35.2	105	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	50 µg/L	84.8	31.2	97.4	
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	25 µg/L	93.3	34.8	137	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	1	µg/L	<1.0	25 µg/L	93.3	38.2	126	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	1	µg/L	<1.0	25 µg/L	95.0	41.4	128	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	1	µg/L	<1.0	25 µg/L	80.2	44.1	122	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	1	µg/L	<1.0	25 µg/L	82.2	41.4	117	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1	µg/L	<1.0	25 µg/L	82.5	41.3	125	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1	µg/L	<1.0	25 µg/L	82.0	41.3	125	
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	25 µg/L	76.6	21.3	145	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2643700)									
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	25 µg/L	73.6	29.5	123	
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	25 µg/L	86.2	41.4	127	
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	25 µg/L	88.8	41.6	126	
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	25 µg/L	93.5	48.9	126	
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	25 µg/L	86.1	54.4	124	
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	25 µg/L	84.6	53.1	125	
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	25 µg/L	92.1	53.2	127	
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	25 µg/L	115	54.1	126	
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	25 µg/L	91.7	52	127	
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	25 µg/L	93.6	55.4	127	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	1	µg/L	<1.0	25 µg/L	67.8	45.6	130	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	25 µg/L	69.3	48.9	128	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	25 µg/L	66.6	50.9	124	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	25 µg/L	74.9	47.4	127	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	25 µg/L	75.0	47.2	128	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	25 µg/L	74.9	47.7	127	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2643699)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	65.4	30.7	123	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	400 µg/L	97.4	34	142	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	74.3	32	124	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2645653)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	320 µg/L	84.0	74.2	142	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2643699)									
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	400 µg/L	74.5	32	126	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	600 µg/L	89.4	32	136	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	200 µg/L	55.8	28.3	142	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2645653)									
EP080: C6 - C10 Fraction	----	20	µg/L	<20	370 µg/L	85.0	74.2	142	
EP080: BTEXN (QCLot: 2645653)									
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	82.6	72.6	122	
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	84.1	71.1	123	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	83.1	71.9	121	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	40 µg/L	82.0	72.3	122	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	81.6	72.3	121	
EP080: Naphthalene	91-20-3	5	µg/L	<5	20 µg/L	84.9	78.8	121	
EP201: Carbamate Pesticides by LCMS (QCLot: 2649387)									
EP201: Oxamyl	23135-22-0	0.2	µg/L	<0.2	1.0 µg/L	131	78.3	144	
EP201: Methomyl	16752-77-5	0.2	µg/L	<0.2	1.0 µg/L	128	59.9	137	
EP201: 3-Hydroxy Carbofuran	16655-82-6	0.2	µg/L	<0.2	1.0 µg/L	118	61.1	143	
EP201: Aldicarb	116-06-3	0.2	µg/L	<0.2	1.0 µg/L	94.4	52	128	
EP201: Bendiocarb	22781-23-3	0.2	µg/L	<0.2	1.0 µg/L	115	70.2	132	
EP201: Thiodicarb	59669-26-0	0.2	µg/L	<0.2	1.0 µg/L	101	52	144	
EP201: Carbofuran	1563-66-2	0.2	µg/L	<0.2	1.0 µg/L	108	65	151	
EP201: Carbaryl	63-25-2	0.2	µg/L	<0.2	1.0 µg/L	107	57	151	
EP201: Methiocarb	2032-65-7	0.2	µg/L	<0.2	1.0 µg/L	118	58	148	
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2645773)									
EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	100 µg/L	126	82	136	
EP202-SL: 2,4-DB	94-82-6	10	µg/L	<10	100 µg/L	134	65	147	
EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	100 µg/L	118	83	137	
EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	100 µg/L	127	75	143	
EP202-SL: MCPA	94-74-6	10	µg/L	<10	100 µg/L	132	76	140	
EP202-SL: 2,4-DP	120-36-5	10	µg/L	<10	100 µg/L	124	76	144	
EP202-SL: 2,4-D	94-75-7	10	µg/L	<10	100 µg/L	136	77	139	
EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	100 µg/L	137	77	141	
EP202-SL: 2,4,5-TP (Silvex)	93-72-1	10	µg/L	<10	100 µg/L	129	75	143	
EP202-SL: 2,4,5-T	93-76-5	10	µg/L	<10	100 µg/L	115	78	140	
EP202-SL: MCPB	94-81-5	10	µg/L	<10	100 µg/L	137	69.2	139	
EP202-SL: Picloram	1918-02-1	10	µg/L	<10	100 µg/L	132	76	144	
EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	100 µg/L	126	77	145	
EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	100 µg/L	132	77	145	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2645773) - continued								
EP202-SL: 2.6-D	575-90-6	10	µg/L	<10	----	----	----	----
EP202-SL: 2.4.6-T	575-89-3	10	µg/L	<10	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
EG020T: Total Metals by ICP-MS (QCLot: 2644730)							
EP1210302-002	TZB1	EG020A-T: Arsenic	7440-38-2	1.00 mg/L	101	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	100	70	130
		EG020A-T: Chromium	7440-47-3	1.00 mg/L	105	70	130
		EG020A-T: Copper	7440-50-8	1.00 mg/L	105	70	130
		EG020A-T: Lead	7439-92-1	1.00 mg/L	96.7	70	130
		EG020A-T: Manganese	7439-96-5	1.00 mg/L	102	70	130
		EG020A-T: Nickel	7440-02-0	1.00 mg/L	102	70	130
		EG020A-T: Zinc	7440-66-6	1.00 mg/L	96.4	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2644761)							
EP1210224-159	Anonymous	EG035T: Mercury	7439-97-6	0.0100 mg/L	103	70	130
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2649877)							
EP1210272-001	Anonymous	EK026SF: Total Cyanide	57-12-5	0.2 mg/L	# 2.9	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2644037)							
EP1210302-001	TZR1	EK055G: Ammonia as N	7664-41-7	1.00 mg/L	110	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2642323)							
EP1210319-001	Anonymous	EK057G: Nitrite as N	----	0.6 mg/L	82.4	70	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2644036)							
EP1210302-001	TZR1	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	107	70	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2643513)							
EP1210288-006	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	25 mg/L	87.3	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2643514)							
EP1210288-006	Anonymous	EK067G: Total Phosphorus as P	----	5 mg/L	93.6	70	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2642324)							
EP1210302-001	TZR1	EK071G: Reactive Phosphorus as P	----	0.5 mg/L	105	70	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2645652)							



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
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2645652) - continued							
EP1210302-002	TZB1	EP074: Benzene	71-43-2	20 µg/L	82.8	82.7	115
		EP074: Toluene	108-88-3	20 µg/L	80.9	77.1	118
EP074E: Halogenated Aliphatic Compounds (QCLot: 2645652)							
EP1210302-002	TZB1	EP074: 1,1-Dichloroethene	75-35-4	20 µg/L	85.1	73.7	126
		EP074: Trichloroethene	79-01-6	20 µg/L	96.6	79.1	120
EP074F: Halogenated Aromatic Compounds (QCLot: 2645652)							
EP1210302-002	TZB1	EP074: Chlorobenzene	108-90-7	20 µg/L	81.8	81.4	115
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2645653)							
EP1210302-002	TZB1	EP080: C6 - C9 Fraction	----	280 µg/L	85.3	77.0	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2645653)							
EP1210302-002	TZB1	EP080: C6 - C10 Fraction	----	330 µg/L	82.0	77.0	137
EP080: BTEXN (QCLot: 2645653)							
EP1210302-002	TZB1	EP080: Benzene	71-43-2	20 µg/L	90.7	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	95.4	73.5	126
EP201: Carbamate Pesticides by LCMS (QCLot: 2649387)							
EP1210302-001	TZR1	EP201: Oxamyl	23135-22-0	1.0 µg/L	126	60	130
		EP201: Methomyl	16752-77-5	1.0 µg/L	129	60	130
		EP201: 3-Hydroxy Carbofuran	16655-82-6	1.0 µg/L	128	60	130
		EP201: Aldicarb	116-06-3	1.0 µg/L	115	52	128
		EP201: Bendiocarb	22781-23-3	1.0 µg/L	117	60	130
		EP201: Thiodicarb	59669-26-0	1.0 µg/L	115	52	144
		EP201: Carbofuran	1563-66-2	1.0 µg/L	136	65	151
		EP201: Carbaryl	63-25-2	1.0 µg/L	129	57	151
		EP201: Methiocarb	2032-65-7	1.0 µg/L	136	58	148
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2645773)							
EP1210302-001	TZR1	EP202-SL: Mecoprop	93-65-2	100 µg/L	117	75	143
		EP202-SL: MCPA	94-74-6	100 µg/L	123	76	140
		EP202-SL: 2,4-D	94-75-7	100 µg/L	114	77	139
		EP202-SL: Triclopyr	55335-06-3	100 µg/L	115	77	141
		EP202-SL: 2,4,5-T	93-76-5	100 µg/L	112	78	140
		EP202-SL: Picloram	1918-02-1	100 µg/L	121	76	144
		EP202-SL: Clopyralid	1702-17-6	100 µg/L	115	77	145

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2642323)										
EP1210319-001	Anonymous	EK057G: Nitrite as N	----	0.6 mg/L	82.4	----	70	130	----	----
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2642324)										
EP1210302-001	TZR1	EK071G: Reactive Phosphorus as P	----	0.5 mg/L	105	----	70	130	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2643513)										
EP1210288-006	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	25 mg/L	87.3	----	70	130	----	----
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2643514)										
EP1210288-006	Anonymous	EK067G: Total Phosphorus as P	----	5 mg/L	93.6	----	70	130	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2644036)										
EP1210302-001	TZR1	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	107	----	70	130	----	----
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2644037)										
EP1210302-001	TZR1	EK055G: Ammonia as N	7664-41-7	1.00 mg/L	110	----	70	130	----	----
EG020T: Total Metals by ICP-MS (QCLot: 2644730)										
EP1210302-002	TZB1	EG020A-T: Arsenic	7440-38-2	1.00 mg/L	101	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	100	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1.00 mg/L	105	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1.00 mg/L	105	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1.00 mg/L	96.7	----	70	130	----	----
		EG020A-T: Manganese	7439-96-5	1.00 mg/L	102	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1.00 mg/L	102	----	70	130	----	----
		EG020A-T: Zinc	7440-66-6	1.00 mg/L	96.4	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2644761)										
EP1210224-159	Anonymous	EG035T: Mercury	7439-97-6	0.0100 mg/L	103	----	70	130	----	----
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2645652)										
EP1210302-002	TZB1	EP074: Benzene	71-43-2	20 µg/L	82.8	----	82.7	115	----	----
		EP074: Toluene	108-88-3	20 µg/L	80.9	----	77.1	118	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 2645652)										
EP1210302-002	TZB1	EP074: 1,1-Dichloroethene	75-35-4	20 µg/L	85.1	----	73.7	126	----	----
		EP074: Trichloroethene	79-01-6	20 µg/L	96.6	----	79.1	120	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 2645652)										
EP1210302-002	TZB1	EP074: Chlorobenzene	108-90-7	20 µg/L	81.8	----	81.4	115	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2645653)										
EP1210302-002	TZB1	EP080: C6 - C9 Fraction	----	280 µg/L	85.3	----	77.0	137	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2645653)										
EP1210302-002	TZB1	EP080: C6 - C10 Fraction	----	330 µg/L	82.0	----	77.0	137	----	----
EP080: BTEXN (QCLot: 2645653)										
EP1210302-002	TZB1	EP080: Benzene	71-43-2	20 µg/L	90.7	----	77.0	122	----	----



Sub-Matrix: WATER

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP080: BTEXN (QCLot: 2645653) - continued										
EP1210302-002	TZB1	EP080: Toluene	108-88-3	20 µg/L	95.4	----	73.5	126	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2645773)										
EP1210302-001	TZR1	EP202-SL: Mecoprop	93-65-2	100 µg/L	117	----	75	143	----	----
		EP202-SL: MCPA	94-74-6	100 µg/L	123	----	76	140	----	----
		EP202-SL: 2.4-D	94-75-7	100 µg/L	114	----	77	139	----	----
		EP202-SL: Triclopyr	55335-06-3	100 µg/L	115	----	77	141	----	----
		EP202-SL: 2.4.5-T	93-76-5	100 µg/L	112	----	78	140	----	----
		EP202-SL: Picloram	1918-02-1	100 µg/L	121	----	76	144	----	----
		EP202-SL: Clopyralid	1702-17-6	100 µg/L	115	----	77	145	----	----
EP201: Carbamate Pesticides by LCMS (QCLot: 2649387)										
EP1210302-001	TZR1	EP201: Oxamyl	23135-22-0	1.0 µg/L	126	----	60	130	----	----
		EP201: Methomyl	16752-77-5	1.0 µg/L	129	----	60	130	----	----
		EP201: 3-Hydroxy Carbofuran	16655-82-6	1.0 µg/L	128	----	60	130	----	----
		EP201: Aldicarb	116-06-3	1.0 µg/L	115	----	52	128	----	----
		EP201: Bendiocarb	22781-23-3	1.0 µg/L	117	----	60	130	----	----
		EP201: Thiodicarb	59669-26-0	1.0 µg/L	115	----	52	144	----	----
		EP201: Carbofuran	1563-66-2	1.0 µg/L	136	----	65	151	----	----
		EP201: Carbaryl	63-25-2	1.0 µg/L	129	----	57	151	----	----
		EP201: Methiocarb	2032-65-7	1.0 µg/L	136	----	58	148	----	----
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2649877)										
EP1210272-001	Anonymous	EK026SF: Total Cyanide	57-12-5	0.2 mg/L	# 2.9	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: EP1210302	Page	: 1 of 9
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: MR ALAN FOLEY	Contact	: Scott James
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: alan.foley@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: I12147 Burswood Stadium	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Burswood Stadium	Date Samples Received	: 10-DEC-2012
C-O-C number	: ----	Issue Date	: 18-DEC-2012
Sampler	: JA and AJ	No. of samples received	: 2
Order number	: ----	No. of samples analysed	: 2
Quote number	: EP/689/12 V4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

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
ED093T: Total Major Cations							
Clear Plastic Bottle - Unfiltered; Lab-acidified (ED093T) TZR1, TZB1	10-DEC-2012	13-DEC-2012	07-JAN-2013	✓	13-DEC-2012	07-JAN-2013	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG020A-T) TZR1, TZB1	10-DEC-2012	13-DEC-2012	08-JUN-2013	✓	13-DEC-2012	08-JUN-2013	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T) TZR1, TZB1	10-DEC-2012	----	----	----	13-DEC-2012	07-JAN-2013	✓
EK026SF: Total CN by Segmented Flow Analyser							
White Plastic Bottle-NaOH (EK026SF) TZR1, TZB1	10-DEC-2012	---	24-DEC-2012	----	14-DEC-2012	24-DEC-2012	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) TZR1, TZB1	10-DEC-2012	---	07-JAN-2013	----	11-DEC-2012	07-JAN-2013	✓
EK057G: Nitrite as N by Discrete Analyser							
Amber Glass Bottle - Unpreserved (EK057G) TZR1, TZB1	10-DEC-2012	---	12-DEC-2012	----	11-DEC-2012	12-DEC-2012	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) TZR1, TZB1	10-DEC-2012	---	07-JAN-2013	----	11-DEC-2012	07-JAN-2013	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) TZR1, TZB1	10-DEC-2012	13-DEC-2012	07-JAN-2013	✓	13-DEC-2012	07-JAN-2013	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) TZR1, TZB1	10-DEC-2012	13-DEC-2012	07-JAN-2013	✓	13-DEC-2012	07-JAN-2013	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Amber Glass Bottle - Unpreserved (EK071G) TZR1, TZB1	10-DEC-2012	---	12-DEC-2012	----	11-DEC-2012	12-DEC-2012	✓



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
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) TZR1, TZB1	10-DEC-2012	13-DEC-2012	17-DEC-2012	✓	14-DEC-2012	22-JAN-2013	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068) TZR1, TZB1	10-DEC-2012	13-DEC-2012	17-DEC-2012	✓	14-DEC-2012	22-JAN-2013	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068) TZR1, TZB1	10-DEC-2012	13-DEC-2012	17-DEC-2012	✓	14-DEC-2012	22-JAN-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) TZR1, TZB1	10-DEC-2012	13-DEC-2012	17-DEC-2012	✓	14-DEC-2012	22-JAN-2013	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) TZR1, TZB1	10-DEC-2012	13-DEC-2012	24-DEC-2012	✓	13-DEC-2012	24-DEC-2012	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) TZR1, TZB1	10-DEC-2012	13-DEC-2012	24-DEC-2012	✓	13-DEC-2012	24-DEC-2012	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) TZR1, TZB1	10-DEC-2012	13-DEC-2012	24-DEC-2012	✓	13-DEC-2012	24-DEC-2012	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) TZR1, TZB1	10-DEC-2012	13-DEC-2012	24-DEC-2012	✓	13-DEC-2012	24-DEC-2012	✓
EP074H: Naphthalene							
Amber VOC Vial - Sulfuric Acid (EP074) TZR1, TZB1	10-DEC-2012	13-DEC-2012	24-DEC-2012	✓	13-DEC-2012	24-DEC-2012	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) TZR1, TZB1	10-DEC-2012	13-DEC-2012	24-DEC-2012	✓	13-DEC-2012	24-DEC-2012	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) TZR1, TZB1	10-DEC-2012	13-DEC-2012	24-DEC-2012	✓	13-DEC-2012	24-DEC-2012	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) TZR1, TZB1	10-DEC-2012	13-DEC-2012	24-DEC-2012	✓	13-DEC-2012	24-DEC-2012	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) TZR1, TZB1	10-DEC-2012	13-DEC-2012	17-DEC-2012	✓	14-DEC-2012	22-JAN-2013	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) TZR1, TZB1	10-DEC-2012	13-DEC-2012	17-DEC-2012	✓	14-DEC-2012	22-JAN-2013	✓



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) TZR1, TZB1	10-DEC-2012	13-DEC-2012	24-DEC-2012	✓	13-DEC-2012	24-DEC-2012	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080) TZR1, TZB1	10-DEC-2012	13-DEC-2012	24-DEC-2012	✓	13-DEC-2012	24-DEC-2012	✓
EP201: Carbamate Pesticides by LCMS							
Amber Glass Bottle - Unpreserved (EP201) TZR1, TZB1	10-DEC-2012	----	----	----	17-DEC-2012	17-DEC-2012	✓
EP202A: Phenoxyacetic Acid Herbicides by LCMS							
Amber Glass Bottle - Unpreserved (EP202-SL) TZR1, TZB1	10-DEC-2012	----	----	----	13-DEC-2012	17-DEC-2012	✓



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(where) 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	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Ammonia as N by Discrete analyser	EK055G	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	7	14.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Cations - Total	ED093T	1	2	50.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	2	16	12.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	5	20.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	2	50.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	9	11.1	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	19	10.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	1	10	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	3	33.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	3	33.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	7	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	16	6.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	9	22.2	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	2	10	20.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatle Fraction	EP071	1	18	5.6	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	3	33.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	3	33.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	7	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Cations - Total	ED093T	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	16	6.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	9	11.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	3	33.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	3	33.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	5.0	5.0	✓	ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	7	14.3	5.0	✓	ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.0	5.0	✓	ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	16	6.3	5.0	✓	ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	5	20.0	5.0	✓	ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	2	50.0	5.0	✓	ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	5.0	5.0	✓	ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	9	11.1	5.0	✓	ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	1	10	10.0	5.0	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	3	33.3	5.0	✓	ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	3	33.3	5.0	✓	ALS QCS3 requirement



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
Major Cations - Total	ED093T	WATER	APHA 21st ed., 3120; USEPA SW 846 - 6010 Samples are digested by USEPA 3005 prior to analysis. The ICPAES technique ionises the sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(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 SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Cyanide by Segmented Flow Analyser	EK026SF	WATER	APHA 4500-CN-O. Sodium hydroxide preserved samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Ammonia as N by Discrete analyser	EK055G	WATER	APHA 21st ed., 4500-NH ₃ G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrite as N by Discrete Analyser	EK057G	WATER	APHA 21st ed., 4500-NO ₂ - B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrate as N by Discrete Analyser	EK058G	WATER	APHA 21st ed., 4500-NO ₃ - F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrite and Nitrate as N (NO _x) by Discrete Analyser	EK059G	WATER	APHA 21st ed., 4500-NO ₃ - F. Combined oxidised Nitrogen (NO ₂ +NO ₃) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	APHA 21st ed., 4500-Norg D. 25mL water samples are digested using a traditional Kjeldahl digestion followed by determination by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	APHA 21st ed., 4500-Norg / 4500-NO ₃ -. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	APHA 21st ed., 4500-P B&F This procedure involves sulphuric acid digestion of a 100mL sample 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 (1999) Schedule B(3) (Appdx. 2)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	APHA 21st ed., 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with orthophosphate 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 (1999) Schedule B(3) (Appdx. 2)
Polychlorinated Biphenyls (PCB)	EP066	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Pesticides by GCMS	EP068	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
TPH - Semivolatle Fraction	EP071	WATER	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 (1999) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	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. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	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 (1999) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	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 NEPM (1999) Schedule B(3) (Appdx. 2)
Carbamate Pesticides by LCMS	EP201	WATER	In-house LCMS (Electrospray in positive mode). Residues of carbamates in water are concentrated on a solid phase extraction cartridge. The compounds are then eluted with 10%methanol in MTBE. The extract is evaporated to nearly dryness and reconstituted in HPLC mobile phase for LC/MS determination.
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	WATER	In-House, LCMS (Electrospray in negative mode). After adding surrogate and acetic acid, water samples are injected on a C18 column for LC/MS determination.
Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 500 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 (1999) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

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							
EP074E: Halogenated Aliphatic Compounds	3138984-002	----	Iodomethane	74-88-4	189 %	42-142%	Recovery greater than upper control limit
Matrix Spike (MS) Recoveries							
EK026SF: Total CN by Segmented Flow Analyser	EP1210272-001	Anonymous	Total Cyanide	57-12-5	2.9 %	70-130%	Recovery less than lower data quality objective

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : EP1210302

<p>Client : RPS ENVIRONMENT PTY LTD</p> <p>Contact : MR ALAN FOLEY</p> <p>Address : 38 STATION STREET SUBIACO WA, AUSTRALIA 6008</p> <p>E-mail : alan.foley@rpsgroup.com.au</p> <p>Telephone : +61 08 93824744</p> <p>Facsimile : +61 08 93821177</p> <p>Project : I12147 Burswood Stadium</p> <p>Order number : ----</p> <p>C-O-C number : ----</p> <p>Site : Burswood Stadium</p> <p>Sampler : JA and AJ</p>	<p>Laboratory : Environmental Division Perth</p> <p>Contact : Scott James</p> <p>Address : 10 Hod Way Malaga WA Australia 6090</p> <p>E-mail : perth.enviro.services@alsglobal.com</p> <p>Telephone : +61-8-9209 7655</p> <p>Facsimile : +61-8-9209 7600</p> <p>Page : 1 of 2</p> <p>Quote number : EP2012BOWBIS0143 (EP/689/12 V3)</p> <p>QC Level : NEPM 1999 Schedule B(3) and ALS QCS3 requirement</p>
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Dates

Date Samples Received : 10-DEC-2012	Issue Date : 11-DEC-2012 13:22
Client Requested Due Date : 18-DEC-2012	Scheduled Reporting Date : 18-DEC-2012

Delivery Details

Mode of Delivery : Client Drop off	Temperature : 3.2 - Ice present
No. of coolers/boxes : 1 Medium Hard Eskies	No. of samples received : 2
Security Seal : Intact.	No. of samples analysed : 2

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- Please see scanned COC for sample discrepancies: extra samples , samples not received etc.
- **Samples received in appropriately pretreated and preserved containers.**
- **pH analysis should be conducted within 6 hours of sampling.**
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (SamplesPerth@alsenviro.com)
- Sample Disposal - Aqueous (14 days), Solid (90 days) from date of completion of Work Order.

Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : EP1210303

Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: MR ALAN FOLEY	Contact	: Scott James
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: alan.foley@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: I12147 Burswood Stadium	Page	: 1 of 3
Order number	: ----	Quote number	: EP2012BOWBIS0143 (EP/689/12 V3)
C-O-C number	: ----	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Burswood Stadium		
Sampler	: JA and AJ		

Dates

Date Samples Received	: 10-DEC-2012	Issue Date	: 11-DEC-2012 14:15
Client Requested Due Date	: 21-DEC-2012	Scheduled Reporting Date	: 21-DEC-2012

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 3.2 - Ice present
No. of coolers/boxes	: 3 Medium Hard Esky	No. of samples received	: 12
Security Seal	: Intact.	No. of samples analysed	: 12

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- Please see scanned COC for sample discrepancies: extra samples , samples not received etc.
- **Samples received in appropriately pretreated and preserved containers.**
- **pH analysis should be conducted within 6 hours of sampling.**
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (SamplesPerth@alsenviro.com)
- Sample Disposal - Aqueous (14 days), Solid (90 days) from date of completion of Work Order.



Sample Container(s)/Preservation Non-Compliances

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

- No sample container / preservation non-compliance exist.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA150H Particle Size Analysis by Hydrometer	SOIL - EA200N Asbestos - Estimated Percentage by W/ANPEM Guidelines	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EG020T (solids) Total Metals by ICP-MS	SOIL - EG035T (solids) Total Mercury by FIMS	SOIL - EK026SF (Solids) Total Cyanide By Segmented Flow Analyser	SOIL - EK071G (solids) Reactive Phosphorus as P By Discrete Analyser	SOIL - EP003 Total Organic Carbon (TOC) in Soil
EP1210303-001	[10-DEC-2012]	T01C01	✓	✓	✓	✓	✓	✓	✓	✓
EP1210303-002	[10-DEC-2012]	T02C01		✓	✓	✓	✓	✓		✓
EP1210303-003	[10-DEC-2012]	T03C01		✓	✓	✓	✓	✓		✓
EP1210303-004	[10-DEC-2012]	T04C01		✓	✓	✓	✓	✓	✓	✓
EP1210303-005	[10-DEC-2012]	T05C01	✓	✓	✓	✓	✓	✓		✓
EP1210303-006	[10-DEC-2012]	T06C01		✓	✓	✓	✓	✓		✓
EP1210303-007	[10-DEC-2012]	T07C01	✓	✓	✓	✓	✓	✓	✓	✓
EP1210303-008	[10-DEC-2012]	T08C01		✓	✓	✓	✓	✓		✓
EP1210303-009	[10-DEC-2012]	T09C01		✓	✓	✓	✓	✓		✓
EP1210303-010	[10-DEC-2012]	T11C01		✓	✓	✓	✓	✓		✓
EP1210303-011	[10-DEC-2012]	T13C01	✓	✓	✓	✓	✓	✓		✓
EP1210303-012	[10-DEC-2012]	T21C01		✓	✓	✓	✓	✓		✓

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EP071 - SD TPH ultra trace in sediments	SOIL - EP074 (solids) Volatile Organic Compounds	SOIL - EP075 SIM Phenols only SIM - Phenols only	SOIL - EP080-SD TPH(V)/BTX in Sediments	SOIL - EP201(solids) Carbamate	SOIL - EP202(solids) Phenoxyacetic acids	SOIL - FCF-SOL (Subcontracted) Faecal Coliforms (Solid)	SOIL - MIS-SOL (Subcontracted) Miscellaneous Subcontracted Analysis (Solid)
EP1210303-001	[10-DEC-2012]	T01C01	✓	✓	✓	✓	✓	✓	✓	✓
EP1210303-002	[10-DEC-2012]	T02C01	✓	✓	✓	✓	✓	✓	✓	✓
EP1210303-003	[10-DEC-2012]	T03C01	✓		✓	✓			✓	✓
EP1210303-004	[10-DEC-2012]	T04C01	✓	✓	✓	✓	✓	✓	✓	✓
EP1210303-005	[10-DEC-2012]	T05C01	✓		✓	✓			✓	✓
EP1210303-006	[10-DEC-2012]	T06C01	✓		✓	✓			✓	✓
EP1210303-007	[10-DEC-2012]	T07C01	✓	✓	✓	✓	✓	✓	✓	✓
EP1210303-008	[10-DEC-2012]	T08C01	✓		✓	✓			✓	✓
EP1210303-009	[10-DEC-2012]	T09C01	✓	✓	✓	✓	✓	✓	✓	✓
EP1210303-010	[10-DEC-2012]	T11C01	✓		✓	✓			✓	✓
EP1210303-011	[10-DEC-2012]	T13C01	✓		✓	✓			✓	✓
EP1210303-012	[10-DEC-2012]	T21C01	✓		✓	✓			✓	✓

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: EP1210303	Page	: 1 of 30
Amendment	: 1		
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: MR ALAN FOLEY	Contact	: Scott James
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: alan.foley@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: I12147 Burswood Stadium	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 10-DEC-2012
Sampler	: JA and AJ	Issue Date	: 01-MAY-2013
Site	: Burswood Stadium		
Quote number	: EP/689/12 V4	No. of samples received	: 12
		No. of samples analysed	: 12

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



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.

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

- **EA200 Legend for Asbestos Type:**
- **EA200 'Am' Amosite (brown asbestos)**
- **EA200 'Ch' Chrysotile (white asbestos)**
- **EA200 'Cr' Crocidolite (blue asbestos)**
- **EA200 't' Trace levels**
- **EA200: 'UMF' Unknown Mineral Fibres - Fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.**
- **EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.**
- **EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.**
- **EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2011 NEPM for Assessment of Site Contamination**
- **EA200Q: Estimations of Asbestos weight and Percentage are not covered under the Scope of NATA Accreditation.**
Weights and Percentages of Asbestos are approximate estimates only. Weights and percentage estimates are based on extracted fibres, visual estimates and estimated Asbestos content in ACM. All numerical results under this method are approximate and should be used as a guide only. Asbestos Fines LOR is extrapolated from AS4964 based on the number of fibres found in trace analysis.
- **EP075: 'Sum of PAH' is the sum of the USEPA 16 priority PAHs**
- **EP130 : Particular samples # T06C01 and #TZC01 required dilution prior to extraction due to matrix interferences. LOR values have been adjusted accordingly. Poor surrogates recovery due to samples matrix.**
- **EP132B-SD : Poor duplicate precision due to sample heterogeneity. Confirmed by re-extraction and re-analysis.**
- **EP132B-SD : Poor matrix spike recovery due to sample heterogeneity.**
- **EP202: Particular samples required dilution due to matrix interferences. LOR raised due to matrix interference and high moisture content.**



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Agnes Szilagyi	Senior Organic Chemist	Perth Inorganics Perth Organics
Canhuang Ke	Metals Instrument Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics Perth Inorganics
Edwandy Fadjjar	Organic Coordinator	Sydney Organics Sydney Organics
Hamish Murray	Laboratory Supervisor	Newcastle
Jonathon Angell	Inorganic Coordinator	Stafford Minerals - AY
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Peter Rennie	Asbestos Identifier	Newcastle
Scott James	Laboratory Manager	Perth Inorganics



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T01C01	T02C01	T03C01	T04C01	T05C01
				[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]
Compound	CAS Number	LOR	Unit	EP1210303-001	EP1210303-002	EP1210303-003	EP1210303-004	EP1210303-005
EA150: Particle Sizing								
+75µm	----	1	%	12	----	----	----	34
+150µm	----	1	%	8	----	----	----	11
+300µm	----	1	%	6	----	----	----	5
+425µm	----	1	%	5	----	----	----	3
+600µm	----	1	%	4	----	----	----	2
+1180µm	----	1	%	3	----	----	----	1
+2.36mm	----	1	%	2	----	----	----	<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
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	54.0	70.2	60.9	46.5	52.6
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	33	----	----	----	33
Silt (2-60 µm)	----	1	%	55	----	----	----	33
Sand (0.06-2.00 mm)	----	1	%	10	----	----	----	33
Gravel (>2mm)	----	1	%	2	----	----	----	1
Cobbles (>6cm)	----	1	%	<1	----	----	----	<1
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	No	No	No
Asbestos Type	1332-21-4	0.1	--	-	-	-	-	-
Sample weight (dry)	----	0.01	g	146	146	231	274	200
APPROVED IDENTIFIER:	----	-	--	P.RENNIE	P.RENNIE	P.RENNIE	P.RENNIE	P.RENNIE
EA200Q: Asbestos Quantification (non-NATA)								
Weight Used for % Calculation	----	0.0010	kg	0.146	0.146	0.231	0.274	0.200
Asbestos Containing Material (ACM >7mm)	1332-21-4	0.01	%	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.007	<0.007	<0.005	<0.004	<0.005
EG005T: Total Metals by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	13200	17600	13300	9710	10700
Arsenic	7440-38-2	5	mg/kg	9	11	10	10	9



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T01C01	T02C01	T03C01	T04C01	T05C01
				[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]
Compound	CAS Number	LOR	Unit	EP1210303-001	EP1210303-002	EP1210303-003	EP1210303-004	EP1210303-005
EG005T: Total Metals by ICP-AES - Continued								
Boron	7440-42-8	50	mg/kg	60	90	----	60	----
Chromium	7440-47-3	2	mg/kg	43	56	49	32	37
Copper	7440-50-8	5	mg/kg	58	81	91	37	76
Iron	7439-89-6	50	mg/kg	36200	44700	34600	27300	28300
Lead	7439-92-1	5	mg/kg	81	99	135	38	79
Manganese	7439-96-5	5	mg/kg	219	301	145	174	150
Molybdenum	7439-98-7	2	mg/kg	6	<2	----	6	----
Nickel	7440-02-0	2	mg/kg	24	18	15	10	13
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Tin	7440-31-5	5	mg/kg	<5	<5	----	<5	----
Zinc	7440-66-6	5	mg/kg	245	344	388	156	310
Magnesium	7439-95-4	50	mg/kg	5170	8110	----	4320	----
EG020T: Total Metals by ICP-MS								
Cadmium	7440-43-9	0.1	mg/kg	0.4	0.3	0.6	0.3	0.6
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.2	0.2	0.1	<0.1	0.1
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	2	<1	<1
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	40	----	----	<20	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	----	0.1	mg/kg	<0.1	----	----	<0.1	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	----	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	1540	----	----	920	----
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	1540	----	----	920	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	274	----	----	167	----
EK071G: Reactive Phosphorus as P by discrete analyser								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

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				[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]
Compound	CAS Number	LOR	Unit	EP1210303-001	EP1210303-002	EP1210303-003	EP1210303-004	EP1210303-005
EK071G: Reactive Phosphorus as P by discrete analyser - Continued								
Reactive Phosphorus as P	14265-44-2	0.1	mg/kg	0.5	----	----	0.7	----
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	2.67	3.32	3.40	2.63	3.51
EP074A: Monocyclic Aromatic Hydrocarbons								
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	----
Styrene	100-42-5	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	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	----	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	----	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	----	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	----	<5	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	----	<5	----



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Compound	CAS Number	LOR	Unit	EP1210303-001	EP1210303-002	EP1210303-003	EP1210303-004	EP1210303-005
EP074E: Halogenated Aliphatic Compounds - Continued								
Chloromethane	74-87-3	5	mg/kg	<5	<5	----	<5	----
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	----	<5	----
Bromomethane	74-83-9	5	mg/kg	<5	<5	----	<5	----
Chloroethane	75-00-3	5	mg/kg	<5	<5	----	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	----	<5	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	----



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Compound	CAS Number	LOR	Unit	EP1210303-001	EP1210303-002	EP1210303-003	EP1210303-004	EP1210303-005
EP074F: Halogenated Aromatic Compounds - Continued								
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	<5	<5	----	<5	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
>C10 - C16 Fraction	----	3	mg/kg	<3	<3	<3	<3	<3
>C16 - C34 Fraction	----	3	mg/kg	<3	<3	<3	<3	<3
>C34 - C40 Fraction	----	5	mg/kg	<5	<5	<5	<5	<5
>C10 - C40 Fraction (sum)	----	3	mg/kg	<3	<3	<3	<3	<3
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	<3	<3	<3	<3	<3
C10 - C14 Fraction	----	3	mg/kg	<3	4	3	7	<3
C15 - C28 Fraction	----	3	mg/kg	37	60	95	122	112
C29 - C36 Fraction	----	5	mg/kg	38	62	92	108	97



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Compound	CAS Number	LOR	Unit	EP1210303-001	EP1210303-002	EP1210303-003	EP1210303-004	EP1210303-005
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	3	mg/kg	75	126	190	237	209
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	----	3	mg/kg	<3	<3	<3	<3	<3
EP080-SD: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
ortho-Xylene	95-47-6	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
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	10	µg/kg	<10	<10	<10	<10	<10
Carbophenothion	786-19-6	10	µg/kg	<10	<10	<10	<10	<10
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<10.0	<10.0	<10.0	<10.0	<10.0
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<10	<10	<10	<10	<10
Chlorpyrifos	2921-88-2	10	µg/kg	<10	<10	<10	<10	<10
Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<10	<10	<10	<10	<10
Demeton-S-methyl	919-86-8	10	µg/kg	<10	<10	<10	<10	<10
Diazinon	333-41-5	10	µg/kg	<10	<10	<10	<10	<10
Dichlorvos	62-73-7	10	µg/kg	<10	<10	<10	<10	<10
Dimethoate	60-51-5	10	µg/kg	<10	<10	<10	<10	<10
Ethion	563-12-2	10	µg/kg	<10	<10	<10	<10	<10
Fenamiphos	22224-92-6	10	µg/kg	<10	<10	<10	<10	<10
Fenthion	55-38-9	10	µg/kg	<10	<10	<10	<10	<10
Malathion	121-75-5	10	µg/kg	<10	<10	<10	<10	<10
Azinphos Methyl	86-50-0	10	µg/kg	<10	<10	<10	<10	<10
Monocrotophos	6923-22-4	10	µg/kg	<10	<10	<10	<10	<10
Parathion	56-38-2	10	µg/kg	<10	<10	<10	<10	<10
Parathion-methyl	298-00-0	10	µg/kg	<10	<10	<10	<10	<10
Pirimphos-ethyl	23505-41-1	10	µg/kg	<10	<10	<10	<10	<10
Prothiofos	34643-46-4	10	µg/kg	<10	<10	<10	<10	<10
EP131A: Organochlorine Pesticides								



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Compound	CAS Number	LOR	Unit	EP1210303-001	EP1210303-002	EP1210303-003	EP1210303-004	EP1210303-005
EP131A: Organochlorine Pesticides - Continued								
Aldrin	309-00-2	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
alpha-BHC	319-84-6	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
beta-BHC	319-85-7	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
delta-BHC	319-86-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
4,4'-DDD	72-54-8	0.50	µg/kg	0.98	0.98	1.33	1.60	3.14
4,4'-DDE	72-55-9	0.50	µg/kg	2.30	<0.50	2.40	1.91	5.08
4,4'-DDT	50-29-3	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
^ Sum of DDD + DDE + DDT	----	0.50	µg/kg	3.28	0.98	3.73	3.51	8.22
Dieldrin	60-57-1	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
alpha-Endosulfan	959-98-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
beta-Endosulfan	33213-65-9	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endosulfan sulfate	1031-07-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
^ Endosulfan (sum)	115-29-7	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin	72-20-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin aldehyde	7421-93-4	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin ketone	53494-70-5	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Heptachlor	76-44-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Heptachlor epoxide	1024-57-3	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
gamma-BHC	58-89-9	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
Methoxychlor	72-43-5	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
cis-Chlordane	5103-71-9	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
trans-Chlordane	5103-74-2	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
^ Total Chlordane (sum)	----	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
Oxychlordane	27304-13-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
EP131B: Polychlorinated Biphenyls (as Aroclors)								
^ Total Polychlorinated biphenyls	----	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1016	12674-11-2	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1221	11104-28-2	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1232	11141-16-5	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1242	53469-21-9	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1248	12672-29-6	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1254	11097-69-1	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1260	11096-82-5	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0



Analytical Results

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Compound	CAS Number	LOR	Unit	EP1210303-001	EP1210303-002	EP1210303-003	EP1210303-004	EP1210303-005
EP131B: Polychlorinated Biphenyls (as Aroclors) - Continued								
EP132B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	5	µg/kg	19	60	84	80	180
2-Methylnaphthalene	91-57-6	5	µg/kg	8	<50	52	50	118
Acenaphthylene	208-96-8	4	µg/kg	49	65	172	211	454
Acenaphthene	83-32-9	4	µg/kg	6	<50	<50	31	50
Fluorene	86-73-7	4	µg/kg	10	<50	<50	47	108
Phenanthrene	85-01-8	4	µg/kg	22	51	118	117	508
Anthracene	120-12-7	4	µg/kg	28	<50	100	111	331
Fluoranthene	206-44-0	4	µg/kg	92	95	258	325	944
Pyrene	129-00-0	4	µg/kg	137	133	519	670	3380
Benz(a)anthracene	56-55-3	4	µg/kg	50	60	188	298	892
Chrysene	218-01-9	4	µg/kg	46	74	186	325	848
Benzo(b)fluoranthene	205-99-2	4	µg/kg	73	81	268	388	904
Benzo(k)fluoranthene	207-08-9	4	µg/kg	32	50	165	180	558
Benzo(e)pyrene	192-97-2	4	µg/kg	47	52	212	287	755
Benzo(a)pyrene	50-32-8	4	µg/kg	92	84	303	494	1350
Perylene	198-55-0	4	µg/kg	95	<50	81	85	210
Benzo(g,h,i)perylene	191-24-2	4	µg/kg	54	<50	163	210	561
Dibenz(a,h)anthracene	53-70-3	4	µg/kg	28	<50	<50	48	137
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	58	<50	108	141	402
Coronene	191-07-1	5	µg/kg	32	<50	<50	48	112
^ Sum of PAHs	----	4	µg/kg	978	805	2980	4150	12800
EP201: Carbamate Pesticides by LCMS								
Oxamyl	23135-22-0	0.02	mg/kg	<0.04	<0.04	----	<0.02	----
Methomyl	16752-77-5	0.02	mg/kg	<0.04	<0.04	----	<0.02	----
3-Hydroxy Carbofuran	16655-82-6	0.02	mg/kg	<0.04	<0.04	----	<0.02	----
Aldicarb	116-06-3	0.02	mg/kg	<0.04	<0.04	----	<0.02	----
Bendiocarb	22781-23-3	0.02	mg/kg	<0.04	<0.04	----	<0.02	----
Thiodicarb	59669-26-0	0.02	mg/kg	<0.04	<0.04	----	<0.02	----
Carbofuran	1563-66-2	0.02	mg/kg	<0.04	<0.04	----	<0.02	----
Carbaryl	63-25-2	0.02	mg/kg	<0.04	<0.04	----	<0.02	----
Methiocarb	2032-65-7	0.02	mg/kg	<0.04	<0.04	----	<0.02	----

EP202A: Phenoxyacetic Acid Herbicides by LCMS



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

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				T01C01	T02C01	T03C01	T04C01	T05C01
				[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]
Compound	CAS Number	LOR	Unit	EP1210303-001	EP1210303-002	EP1210303-003	EP1210303-004	EP1210303-005
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued								
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.08	<0.08	----	<0.04	----
2,4-DB	94-82-6	0.02	mg/kg	<0.08	<0.08	----	<0.04	----
Dicamba	1918-00-9	0.02	mg/kg	<0.08	<0.08	----	<0.04	----
Mecoprop	93-65-2	0.02	mg/kg	<0.08	<0.08	----	<0.04	----
MCPA	94-74-6	0.02	mg/kg	<0.08	<0.08	----	<0.04	----
2,4-DP	120-36-5	0.02	mg/kg	<0.08	<0.08	----	<0.04	----
2,4-D	94-75-7	0.02	mg/kg	<0.08	<0.08	----	<0.04	----
Triclopyr	55335-06-3	0.02	mg/kg	<0.08	<0.08	----	<0.04	----
2,4,5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.08	<0.08	----	<0.04	----
2,4,5-T	93-76-5	0.02	mg/kg	<0.08	<0.08	----	<0.04	----
MCPB	94-81-5	0.02	mg/kg	<0.08	<0.08	----	<0.04	----
Picloram	1918-02-1	0.02	mg/kg	<0.08	<0.08	----	<0.04	----
Clopyralid	1702-17-6	0.02	mg/kg	<0.08	<0.08	----	<0.04	----
Fluroxypyr	69377-81-7	0.02	mg/kg	<0.08	<0.08	----	<0.04	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	114	81.6	----	117	----
Toluene-D8	2037-26-5	0.1	%	90.8	78.8	----	97.0	----
4-Bromofluorobenzene	460-00-4	0.1	%	96.3	71.8	----	99.4	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	80.3	83.0	89.1	80.0	82.3
2-Chlorophenol-D4	93951-73-6	0.1	%	82.0	83.0	86.7	79.9	84.3
2,4,6-Tribromophenol	118-79-6	0.1	%	69.1	69.2	74.0	68.1	70.3
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	82.5	82.0	83.4	82.0	88.0
Anthracene-d10	1719-06-8	0.1	%	88.8	88.9	92.7	87.4	111
4-Terphenyl-d14	1718-51-0	0.1	%	86.4	79.1	91.7	83.4	95.1
EP080-SD: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	110	79.5	77.2	114	83.7
Toluene-D8	2037-26-5	0.1	%	89.6	77.8	80.1	95.7	87.2
4-Bromofluorobenzene	460-00-4	0.1	%	93.8	73.6	73.5	95.4	72.2
EP130S: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	49.5	68.2	56.8	49.2	59.9
EP131S: OC Pesticide Surrogate								



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Compound	CAS Number	LOR	Unit	EP1210303-001	EP1210303-002	EP1210303-003	EP1210303-004	EP1210303-005
EP131S: OC Pesticide Surrogate - Continued								
Dibromo-DDE	21655-73-2	0.1	%	64.1	50.6	72.7	65.0	48.8
EP131T: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	55.2	56.3	58.7	41.3	54.0
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	111	119	94.7	118	104
Anthracene-d10	1719-06-8	0.1	%	112	102	113	113	110
4-Terphenyl-d14	1718-51-0	0.1	%	112	96.9	101	99.9	98.1
EP201S: Carbamate Surrogate								
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	0.1	%	94.9	99.0	----	84.9	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	116	80.3	----	72.3	----



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Compound	CAS Number	LOR	Unit	EP1210303-006	EP1210303-007	EP1210303-008	EP1210303-009	EP1210303-010
EA150: Particle Sizing								
+75µm	----	1	%	----	14	----	----	----
+150µm	----	1	%	----	4	----	----	----
+300µm	----	1	%	----	2	----	----	----
+425µm	----	1	%	----	2	----	----	----
+600µm	----	1	%	----	2	----	----	----
+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	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	44.4	55.8	54.0	48.5	60.8
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	40	----	----	----
Silt (2-60 µm)	----	1	%	----	46	----	----	----
Sand (0.06-2.00 mm)	----	1	%	----	14	----	----	----
Gravel (>2mm)	----	1	%	----	<1	----	----	----
Cobbles (>6cm)	----	1	%	----	<1	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	No	No	No
Asbestos Type	1332-21-4	0.1	--	-	-	-	-	-
Sample weight (dry)	----	0.01	g	301	205	207	265	344
APPROVED IDENTIFIER:	----	-	--	P.RENNIE	P.RENNIE	P.RENNIE	P.RENNIE	P.RENNIE
EA200Q: Asbestos Quantification (non-NATA)								
Weight Used for % Calculation	----	0.0010	kg	0.302	0.206	0.207	0.265	0.344
Asbestos Containing Material (ACM >7mm)	1332-21-4	0.01	%	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.003	<0.005	<0.005	<0.004	<0.003
EG005T: Total Metals by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	8180	10800	13500	10200	15400
Arsenic	7440-38-2	5	mg/kg	8	8	11	8	12



Analytical Results

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Compound	CAS Number	LOR	Unit	EP1210303-006	EP1210303-007	EP1210303-008	EP1210303-009	EP1210303-010
EG005T: Total Metals by ICP-AES - Continued								
Boron	7440-42-8	50	mg/kg	----	70	----	60	----
Chromium	7440-47-3	2	mg/kg	25	34	43	33	49
Copper	7440-50-8	5	mg/kg	65	37	88	50	102
Iron	7439-89-6	50	mg/kg	20400	31400	33900	26700	38500
Lead	7439-92-1	5	mg/kg	53	31	82	66	118
Manganese	7439-96-5	5	mg/kg	104	215	154	140	192
Molybdenum	7439-98-7	2	mg/kg	----	5	----	4	----
Nickel	7440-02-0	2	mg/kg	10	11	14	11	18
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Tin	7440-31-5	5	mg/kg	----	<5	----	<5	----
Zinc	7440-66-6	5	mg/kg	344	89	357	198	384
Magnesium	7439-95-4	50	mg/kg	----	5100	----	4300	----
EG020T: Total Metals by ICP-MS								
Cadmium	7440-43-9	0.1	mg/kg	0.7	0.2	0.6	0.3	0.6
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.2	<0.1	<0.1	<0.1	0.2
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	1	1	2
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	----	190	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	----	0.1	mg/kg	----	<0.1	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	----	0.1	mg/kg	----	<0.1	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	----	<0.1	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	----	1170	----	----	----
EK062: Total Nitrogen as N (TKN + NOx)								
Total Nitrogen as N	----	20	mg/kg	----	1170	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	----	200	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								



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Compound	CAS Number	LOR	Unit	EP1210303-006	EP1210303-007	EP1210303-008	EP1210303-009	EP1210303-010
EK071G: Reactive Phosphorus as P by discrete analyser - Continued								
Reactive Phosphorus as P	14265-44-2	0.1	mg/kg	----	2.8	----	----	----
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	4.70	3.57	3.39	1.40	2.96
EP074A: Monocyclic Aromatic Hydrocarbons								
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	----
Styrene	100-42-5	0.5	mg/kg	----	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	<0.5	----	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	<0.5	----	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	<0.5	----	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	<0.5	----	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	----	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	----	<0.5	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	----	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	----	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	----	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	----	<5	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	----	<0.5	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	----	<0.5	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	----	<0.5	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	----	<0.5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	----	<5	----



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Compound	CAS Number	LOR	Unit	EP1210303-006	EP1210303-007	EP1210303-008	EP1210303-009	EP1210303-010
EP074E: Halogenated Aliphatic Compounds - Continued								
Chloromethane	74-87-3	5	mg/kg	----	<5	----	<5	----
Vinyl chloride	75-01-4	5	mg/kg	----	<5	----	<5	----
Bromomethane	74-83-9	5	mg/kg	----	<5	----	<5	----
Chloroethane	75-00-3	5	mg/kg	----	<5	----	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	----	<5	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	----	<0.5	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	----	<0.5	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	----	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	----	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	----	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	----	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	----	<0.5	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	----	<0.5	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	----	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	----	<0.5	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	----	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	----	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	----	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	----	<0.5	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	----	<0.5	----



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Compound	CAS Number	LOR	Unit	EP1210303-006	EP1210303-007	EP1210303-008	EP1210303-009	EP1210303-010
EP074F: Halogenated Aromatic Compounds - Continued								
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	----	<0.5	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	----	<0.5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	----	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	----	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	----	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	----	<0.5	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	----	<5	----	<5	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
>C10 - C16 Fraction	----	3	mg/kg	<3	<3	<3	<3	<3
>C16 - C34 Fraction	----	3	mg/kg	<3	<3	<3	<3	<3
>C34 - C40 Fraction	----	5	mg/kg	<5	<5	<5	<5	<5
>C10 - C40 Fraction (sum)	----	3	mg/kg	<3	<3	<3	<3	<3
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	<3	<3	<3	<3	<3
C10 - C14 Fraction	----	3	mg/kg	13	6	6	4	6
C15 - C28 Fraction	----	3	mg/kg	525	118	167	59	131
C29 - C36 Fraction	----	5	mg/kg	340	103	154	68	118



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T06C01	T07C01	T08C01	T09C01	T11C01
				[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]
Compound	CAS Number	LOR	Unit	EP1210303-006	EP1210303-007	EP1210303-008	EP1210303-009	EP1210303-010
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	3	mg/kg	878	227	327	131	255
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	----	3	mg/kg	<3	<3	<3	<3	<3
EP080-SD: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
ortho-Xylene	95-47-6	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
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	10	µg/kg	<25	<10	<10	<10	<10
Carbophenothion	786-19-6	10	µg/kg	<25	<10	<10	<10	<10
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<25.0	<10.0	<10.0	<10.0	<10.0
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<25	<10	<10	<10	<10
Chlorpyrifos	2921-88-2	10	µg/kg	<25	<10	<10	<10	<10
Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<25	<10	<10	<10	<10
Demeton-S-methyl	919-86-8	10	µg/kg	<25	<10	<10	<10	<10
Diazinon	333-41-5	10	µg/kg	<25	<10	<10	<10	<10
Dichlorvos	62-73-7	10	µg/kg	<25	<10	<10	<10	<10
Dimethoate	60-51-5	10	µg/kg	<25	<10	<10	<10	<10
Ethion	563-12-2	10	µg/kg	<25	<10	<10	<10	<10
Fenamiphos	22224-92-6	10	µg/kg	<25	<10	<10	<10	<10
Fenthion	55-38-9	10	µg/kg	<25	<10	<10	<10	<10
Malathion	121-75-5	10	µg/kg	<25	<10	<10	<10	<10
Azinphos Methyl	86-50-0	10	µg/kg	<25	<10	<10	<10	<10
Monocrotophos	6923-22-4	10	µg/kg	<25	<10	<10	<10	<10
Parathion	56-38-2	10	µg/kg	<25	<10	<10	<10	<10
Parathion-methyl	298-00-0	10	µg/kg	<25	<10	<10	<10	<10
Pirimphos-ethyl	23505-41-1	10	µg/kg	<25	<10	<10	<10	<10
Prothiofos	34643-46-4	10	µg/kg	<25	<10	<10	<10	<10
EP131A: Organochlorine Pesticides								



Analytical Results

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Client sample ID

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				[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]
Compound	CAS Number	LOR	Unit	EP1210303-006	EP1210303-007	EP1210303-008	EP1210303-009	EP1210303-010
EP131A: Organochlorine Pesticides - Continued								
Aldrin	309-00-2	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
alpha-BHC	319-84-6	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
beta-BHC	319-85-7	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
delta-BHC	319-86-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
4,4'-DDD	72-54-8	0.50	µg/kg	8.43	1.60	3.14	0.78	4.58
4,4'-DDE	72-55-9	0.50	µg/kg	9.56	2.69	7.83	3.68	5.63
4,4'-DDT	50-29-3	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
^ Sum of DDD + DDE + DDT	----	0.50	µg/kg	18.0	4.29	11.0	4.46	10.2
Dieldrin	60-57-1	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
alpha-Endosulfan	959-98-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
beta-Endosulfan	33213-65-9	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endosulfan sulfate	1031-07-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
^ Endosulfan (sum)	115-29-7	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin	72-20-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin aldehyde	7421-93-4	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin ketone	53494-70-5	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Heptachlor	76-44-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Heptachlor epoxide	1024-57-3	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
gamma-BHC	58-89-9	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
Methoxychlor	72-43-5	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
cis-Chlordane	5103-71-9	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
trans-Chlordane	5103-74-2	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
^ Total Chlordane (sum)	----	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
Oxychlordane	27304-13-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
EP131B: Polychlorinated Biphenyls (as Aroclors)								
^ Total Polychlorinated biphenyls	----	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1016	12674-11-2	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1221	11104-28-2	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1232	11141-16-5	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1242	53469-21-9	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1248	12672-29-6	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1254	11097-69-1	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1260	11096-82-5	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

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				[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]
Compound	CAS Number	LOR	Unit	EP1210303-006	EP1210303-007	EP1210303-008	EP1210303-009	EP1210303-010
EP131B: Polychlorinated Biphenyls (as Aroclors) - Continued								
EP132B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	5	µg/kg	797	68	112	54	116
2-Methylnaphthalene	91-57-6	5	µg/kg	843	<50	91	32	83
Acenaphthylene	208-96-8	4	µg/kg	7770	131	329	74	276
Acenaphthene	83-32-9	4	µg/kg	381	<50	<50	<25	<50
Fluorene	86-73-7	4	µg/kg	1560	<50	67	<25	62
Phenanthrene	85-01-8	4	µg/kg	16200	107	166	52	174
Anthracene	120-12-7	4	µg/kg	9950	73	195	35	159
Fluoranthene	206-44-0	4	µg/kg	35300	167	387	96	389
Pyrene	129-00-0	4	µg/kg	68800	383	1040	164	804
Benz(a)anthracene	56-55-3	4	µg/kg	16900	121	291	76	302
Chrysene	218-01-9	4	µg/kg	17400	125	325	78	302
Benzo(b)fluoranthene	205-99-2	4	µg/kg	11900	132	568	101	476
Benzo(k)fluoranthene	207-08-9	4	µg/kg	8620	80	306	37	189
Benzo(e)pyrene	192-97-2	4	µg/kg	9250	108	433	67	343
Benzo(a)pyrene	50-32-8	4	µg/kg	9250	158	662	100	498
Perylene	198-55-0	4	µg/kg	2730	<50	123	29	94
Benzo(g,h,i)perylene	191-24-2	4	µg/kg	6230	89	368	60	287
Dibenz(a,h)anthracene	53-70-3	4	µg/kg	1440	<50	82	<25	63
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	3260	62	272	41	204
Coronene	191-07-1	5	µg/kg	1690	<50	123	<25	70
^ Sum of PAHs	----	4	µg/kg	230000	1800	5940	1100	4890
EP201: Carbamate Pesticides by LCMS								
Oxamyl	23135-22-0	0.02	mg/kg	----	<0.04	----	<0.02	----
Methomyl	16752-77-5	0.02	mg/kg	----	<0.04	----	<0.02	----
3-Hydroxy Carbofuran	16655-82-6	0.02	mg/kg	----	<0.04	----	<0.02	----
Aldicarb	116-06-3	0.02	mg/kg	----	<0.04	----	<0.02	----
Bendiocarb	22781-23-3	0.02	mg/kg	----	<0.04	----	<0.02	----
Thiodicarb	59669-26-0	0.02	mg/kg	----	<0.04	----	<0.02	----
Carbofuran	1563-66-2	0.02	mg/kg	----	<0.04	----	<0.02	----
Carbaryl	63-25-2	0.02	mg/kg	----	<0.04	----	<0.02	----
Methiocarb	2032-65-7	0.02	mg/kg	----	<0.04	----	<0.02	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

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				[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]
Compound	CAS Number	LOR	Unit	EP1210303-006	EP1210303-007	EP1210303-008	EP1210303-009	EP1210303-010
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued								
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	----	<0.08	----	<0.04	----
2,4-DB	94-82-6	0.02	mg/kg	----	<0.08	----	<0.04	----
Dicamba	1918-00-9	0.02	mg/kg	----	<0.08	----	<0.04	----
Mecoprop	93-65-2	0.02	mg/kg	----	<0.08	----	<0.04	----
MCPA	94-74-6	0.02	mg/kg	----	<0.08	----	<0.04	----
2,4-DP	120-36-5	0.02	mg/kg	----	<0.08	----	<0.04	----
2,4-D	94-75-7	0.02	mg/kg	----	<0.08	----	<0.04	----
Triclopyr	55335-06-3	0.02	mg/kg	----	<0.08	----	<0.04	----
2,4,5-TP (Silvex)	93-72-1	0.02	mg/kg	----	<0.08	----	<0.04	----
2,4,5-T	93-76-5	0.02	mg/kg	----	<0.08	----	<0.04	----
MCPB	94-81-5	0.02	mg/kg	----	<0.08	----	<0.04	----
Picloram	1918-02-1	0.02	mg/kg	----	<0.08	----	<0.04	----
Clopyralid	1702-17-6	0.02	mg/kg	----	<0.08	----	<0.04	----
Fluroxypyr	69377-81-7	0.02	mg/kg	----	<0.08	----	<0.04	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	94.8	----	113	----
Toluene-D8	2037-26-5	0.1	%	----	78.5	----	92.8	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	83.8	----	97.2	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	88.1	89.9	86.6	81.5	82.0
2-Chlorophenol-D4	93951-73-6	0.1	%	87.6	98.6	89.6	86.0	81.5
2,4,6-Tribromophenol	118-79-6	0.1	%	71.4	82.2	68.9	70.4	68.4
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	84.0	96.5	83.5	81.3	83.8
Anthracene-d10	1719-06-8	0.1	%	86.6	99.6	88.6	88.6	87.4
4-Terphenyl-d14	1718-51-0	0.1	%	83.0	99.7	87.2	88.1	85.4
EP080-SD: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	110	92.4	110	110	111
Toluene-D8	2037-26-5	0.1	%	97.3	77.5	90.4	91.6	94.7
4-Bromofluorobenzene	460-00-4	0.1	%	94.4	80.5	91.9	93.6	96.3
EP130S: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	45.1	72.7	48.7	45.3	53.0
EP131S: OC Pesticide Surrogate								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

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				[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]	[10-DEC-2012]
Compound	CAS Number	LOR	Unit	EP1210303-006	EP1210303-007	EP1210303-008	EP1210303-009	EP1210303-010
EP131S: OC Pesticide Surrogate - Continued								
Dibromo-DDE	21655-73-2	0.1	%	55.0	37.3	49.1	52.2	57.7
EP131T: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	125	45.8	68.2	54.8	59.2
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	113	110	84.3	118	102
Anthracene-d10	1719-06-8	0.1	%	113	111	109	112	110
4-Terphenyl-d14	1718-51-0	0.1	%	108	103	106	99.2	102
EP201S: Carbamate Surrogate								
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	0.1	%	----	92.9	----	114	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	----	84.4	----	94.2	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

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				T13C01	T21C01	---	---	---
				[10-DEC-2012]	[10-DEC-2012]	---	---	---
Compound	CAS Number	LOR	Unit	EP1210303-011	EP1210303-012	---	---	---
EA150: Particle Sizing								
+75µm	---	1	%	2	---	---	---	---
+150µm	---	1	%	2	---	---	---	---
+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	---	---	---	---
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	70.1	48.0	---	---	---
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	---	1	%	55	---	---	---	---
Silt (2-60 µm)	---	1	%	42	---	---	---	---
Sand (0.06-2.00 mm)	---	1	%	2	---	---	---	---
Gravel (>2mm)	---	1	%	1	---	---	---	---
Cobbles (>6cm)	---	1	%	<1	---	---	---	---
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	---	---	---
Asbestos Type	1332-21-4	0.1	--	-	-	---	---	---
Sample weight (dry)	---	0.01	g	148	279	---	---	---
APPROVED IDENTIFIER:	---	-	--	P.RENNIE	P.RENNIE	---	---	---
EA200Q: Asbestos Quantification (non-NATA)								
Weight Used for % Calculation	---	0.0010	kg	0.148	0.279	---	---	---
Asbestos Containing Material (ACM >7mm)	1332-21-4	0.01	%	<0.01	<0.01	---	---	---
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.007	<0.003	---	---	---
EG005T: Total Metals by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	17200	11400	---	---	---
Arsenic	7440-38-2	5	mg/kg	11	8	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

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				T13C01	T21C01	---	---	---
				[10-DEC-2012]	[10-DEC-2012]	---	---	---
Compound	CAS Number	LOR	Unit	EP1210303-011	EP1210303-012	---	---	---
EG005T: Total Metals by ICP-AES - Continued								
Chromium	7440-47-3	2	mg/kg	55	38	---	---	---
Copper	7440-50-8	5	mg/kg	81	60	---	---	---
Iron	7439-89-6	50	mg/kg	44200	28000	---	---	---
Lead	7439-92-1	5	mg/kg	111	60	---	---	---
Manganese	7439-96-5	5	mg/kg	196	92	---	---	---
Nickel	7440-02-0	2	mg/kg	16	12	---	---	---
Selenium	7782-49-2	5	mg/kg	<5	<5	---	---	---
Zinc	7440-66-6	5	mg/kg	346	204	---	---	---
EG020T: Total Metals by ICP-MS								
Cadmium	7440-43-9	0.1	mg/kg	0.4	0.4	---	---	---
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.1	0.1	---	---	---
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	2	<1	---	---	---
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	3.16	2.12	---	---	---
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	---	---	---
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	---	---	---
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	---	---	---
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	---	---	---
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	---	---	---
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	---	---	---
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	---	---	---
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	---	---	---
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	---	---	---
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	---	---	---
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	---	---	---
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	---	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
>C10 - C16 Fraction	----	3	mg/kg	<3	<3	---	---	---
>C16 - C34 Fraction	----	3	mg/kg	<3	<3	---	---	---
>C34 - C40 Fraction	----	5	mg/kg	<5	<5	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T13C01	T21C01	---	---	---
				[10-DEC-2012]	[10-DEC-2012]	---	---	---
Compound	CAS Number	LOR	Unit	EP1210303-011	EP1210303-012	---	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft - Continued								
>C10 - C40 Fraction (sum)	----	3	mg/kg	<3	<3	---	---	---
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	<3	<3	---	---	---
C10 - C14 Fraction	----	3	mg/kg	<3	<3	---	---	---
C15 - C28 Fraction	----	3	mg/kg	47	53	---	---	---
C29 - C36 Fraction	----	5	mg/kg	58	58	---	---	---
^ C10 - C36 Fraction (sum)	----	3	mg/kg	105	111	---	---	---
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	----	3	mg/kg	<3	<3	---	---	---
EP080-SD: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	---	---	---
Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	---	---	---
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	---	---	---
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	<0.2	<0.2	---	---	---
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	<0.2	---	---	---
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	---	---	---
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	---	---	---
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	10	µg/kg	<10	<10	---	---	---
Carbophenothion	786-19-6	10	µg/kg	<10	<10	---	---	---
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<10.0	<10.0	---	---	---
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<10	<10	---	---	---
Chlorpyrifos	2921-88-2	10	µg/kg	<10	<10	---	---	---
Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<10	<10	---	---	---
Demeton-S-methyl	919-86-8	10	µg/kg	<10	<10	---	---	---
Diazinon	333-41-5	10	µg/kg	<10	<10	---	---	---
Dichlorvos	62-73-7	10	µg/kg	<10	<10	---	---	---
Dimethoate	60-51-5	10	µg/kg	<10	<10	---	---	---
Ethion	563-12-2	10	µg/kg	<10	<10	---	---	---
Fenamiphos	22224-92-6	10	µg/kg	<10	<10	---	---	---
Fenthion	55-38-9	10	µg/kg	<10	<10	---	---	---
Malathion	121-75-5	10	µg/kg	<10	<10	---	---	---
Azinphos Methyl	86-50-0	10	µg/kg	<10	<10	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T13C01	T21C01	---	---	---
				[10-DEC-2012]	[10-DEC-2012]	---	---	---
Compound	CAS Number	LOR	Unit	EP1210303-011	EP1210303-012	---	---	---
EP130A: Organophosphorus Pesticides (Ultra-trace) - Continued								
Monocrotophos	6923-22-4	10	µg/kg	<10	<10	---	---	---
Parathion	56-38-2	10	µg/kg	<10	<10	---	---	---
Parathion-methyl	298-00-0	10	µg/kg	<10	<10	---	---	---
Pirimphos-ethyl	23505-41-1	10	µg/kg	<10	<10	---	---	---
Prothiofos	34643-46-4	10	µg/kg	<10	<10	---	---	---
EP131A: Organochlorine Pesticides								
Aldrin	309-00-2	0.50	µg/kg	<0.50	<0.50	---	---	---
alpha-BHC	319-84-6	0.50	µg/kg	<0.50	<0.50	---	---	---
beta-BHC	319-85-7	0.50	µg/kg	<0.50	<0.50	---	---	---
delta-BHC	319-86-8	0.50	µg/kg	<0.50	<0.50	---	---	---
4.4'-DDD	72-54-8	0.50	µg/kg	1.36	1.32	---	---	---
4.4'-DDE	72-55-9	0.50	µg/kg	<0.50	1.75	---	---	---
4.4'-DDT	50-29-3	0.50	µg/kg	<0.50	<0.50	---	---	---
^ Sum of DDD + DDE + DDT	----	0.50	µg/kg	1.36	3.07	---	---	---
Dieldrin	60-57-1	0.50	µg/kg	<0.50	<0.50	---	---	---
alpha-Endosulfan	959-98-8	0.50	µg/kg	<0.50	<0.50	---	---	---
beta-Endosulfan	33213-65-9	0.50	µg/kg	<0.50	<0.50	---	---	---
Endosulfan sulfate	1031-07-8	0.50	µg/kg	<0.50	<0.50	---	---	---
^ Endosulfan (sum)	115-29-7	0.50	µg/kg	<0.50	<0.50	---	---	---
Endrin	72-20-8	0.50	µg/kg	<0.50	<0.50	---	---	---
Endrin aldehyde	7421-93-4	0.50	µg/kg	<0.50	<0.50	---	---	---
Endrin ketone	53494-70-5	0.50	µg/kg	<0.50	<0.50	---	---	---
Heptachlor	76-44-8	0.50	µg/kg	<0.50	<0.50	---	---	---
Heptachlor epoxide	1024-57-3	0.50	µg/kg	<0.50	<0.50	---	---	---
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg	<0.50	<0.50	---	---	---
gamma-BHC	58-89-9	0.25	µg/kg	<0.25	<0.25	---	---	---
Methoxychlor	72-43-5	0.50	µg/kg	<0.50	<0.50	---	---	---
cis-Chlordane	5103-71-9	0.25	µg/kg	<0.25	<0.25	---	---	---
trans-Chlordane	5103-74-2	0.25	µg/kg	<0.25	<0.25	---	---	---
^ Total Chlordane (sum)	----	0.25	µg/kg	<0.25	<0.25	---	---	---
Oxychlordane	27304-13-8	0.50	µg/kg	<0.50	<0.50	---	---	---
EP131B: Polychlorinated Biphenyls (as Aroclors)								
^ Total Polychlorinated biphenyls	----	5.0	µg/kg	<5.0	<5.0	---	---	---
Aroclor 1016	12674-11-2	5.0	µg/kg	<5.0	<5.0	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T13C01	T21C01	---	---	---
				[10-DEC-2012]	[10-DEC-2012]	---	---	---
Compound	CAS Number	LOR	Unit	EP1210303-011	EP1210303-012	---	---	---
EP131B: Polychlorinated Biphenyls (as Aroclors) - Continued								
Aroclor 1221	11104-28-2	5.0	µg/kg	<5.0	<5.0	---	---	---
Aroclor 1232	11141-16-5	5.0	µg/kg	<5.0	<5.0	---	---	---
Aroclor 1242	53469-21-9	5.0	µg/kg	<5.0	<5.0	---	---	---
Aroclor 1248	12672-29-6	5.0	µg/kg	<5.0	<5.0	---	---	---
Aroclor 1254	11097-69-1	5.0	µg/kg	<5.0	<5.0	---	---	---
Aroclor 1260	11096-82-5	5.0	µg/kg	<5.0	<5.0	---	---	---
EP132B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	5	µg/kg	94	52	---	---	---
2-Methylnaphthalene	91-57-6	5	µg/kg	<50	31	---	---	---
Acenaphthylene	208-96-8	4	µg/kg	202	62	---	---	---
Acenaphthene	83-32-9	4	µg/kg	<50	<25	---	---	---
Fluorene	86-73-7	4	µg/kg	<50	<25	---	---	---
Phenanthrene	85-01-8	4	µg/kg	98	60	---	---	---
Anthracene	120-12-7	4	µg/kg	120	33	---	---	---
Fluoranthene	206-44-0	4	µg/kg	312	110	---	---	---
Pyrene	129-00-0	4	µg/kg	457	172	---	---	---
Benz(a)anthracene	56-55-3	4	µg/kg	213	74	---	---	---
Chrysene	218-01-9	4	µg/kg	236	86	---	---	---
Benzo(b)fluoranthene	205-99-2	4	µg/kg	338	94	---	---	---
Benzo(k)fluoranthene	207-08-9	4	µg/kg	186	59	---	---	---
Benzo(e)pyrene	192-97-2	4	µg/kg	222	72	---	---	---
Benzo(a)pyrene	50-32-8	4	µg/kg	409	104	---	---	---
Perylene	198-55-0	4	µg/kg	80	<25	---	---	---
Benzo(g,h,i)perylene	191-24-2	4	µg/kg	236	60	---	---	---
Dibenz(a,h)anthracene	53-70-3	4	µg/kg	80	<25	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	212	40	---	---	---
Coronene	191-07-1	5	µg/kg	66	<25	---	---	---
^ Sum of PAHs	---	4	µg/kg	3560	1110	---	---	---
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	83.3	87.4	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	87.6	88.6	---	---	---
2,4,6-Tribromophenol	118-79-6	0.1	%	72.0	68.5	---	---	---
EP075(SIM)T: PAH Surrogates								



Analytical Results

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

Client sample ID

Client sampling date / time

				T13C01	T21C01	---	---	---
				[10-DEC-2012]	[10-DEC-2012]	---	---	---
Compound	CAS Number	LOR	Unit	EP1210303-011	EP1210303-012	---	---	---
EP075(SIM)T: PAH Surrogates - Continued								
2-Fluorobiphenyl	321-60-8	0.1	%	87.6	81.8	---	---	---
Anthracene-d10	1719-06-8	0.1	%	94.9	90.7	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	95.6	92.2	---	---	---
EP080-SD: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	74.0	107	---	---	---
Toluene-D8	2037-26-5	0.1	%	71.8	91.0	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	71.4	90.2	---	---	---
EP130S: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	46.7	45.0	---	---	---
EP131S: OC Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	51.3	67.7	---	---	---
EP131T: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	39.3	61.6	---	---	---
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	96.5	112	---	---	---
Anthracene-d10	1719-06-8	0.1	%	111	119	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	110	96.9	---	---	---

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	T01C01 - [10-DEC-2012]	Dark grey sludge with small shell fragments
EA200: Description	T02C01 - [10-DEC-2012]	Dark grey sludge with small shell fragments
EA200: Description	T03C01 - [10-DEC-2012]	Dark grey sludge with small shell fragments
EA200: Description	T04C01 - [10-DEC-2012]	Dark grey sludge with small shell fragments
EA200: Description	T05C01 - [10-DEC-2012]	Dark grey sludge with small shell fragments
EA200: Description	T06C01 - [10-DEC-2012]	Dark grey sludge with small shell fragments
EA200: Description	T07C01 - [10-DEC-2012]	Dark grey sludge with small shell fragments
EA200: Description	T08C01 - [10-DEC-2012]	Dark grey sludge with small shell fragments
EA200: Description	T09C01 - [10-DEC-2012]	Dark grey sludge with small shell fragments
EA200: Description	T11C01 - [10-DEC-2012]	Dark grey sludge with small shell fragments
EA200: Description	T13C01 - [10-DEC-2012]	Dark grey sludge with small shell fragments
EA200: Description	T21C01 - [10-DEC-2012]	Dark grey-brown sludge with small shell fragments



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	65	135
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	70.6	120.8
2-Chlorophenol-D4	93951-73-6	66.9	114.4
2,4,6-Tribromophenol	118-79-6	38.7	121
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	80.9	122.1
Anthracene-d10	1719-06-8	76.3	116.1
4-Terphenyl-d14	1718-51-0	58.7	128.3
EP080-SD: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	67	137
Toluene-D8	2037-26-5	74	134
4-Bromofluorobenzene	460-00-4	73	137
EP130S: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	101
EP131S: OC Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	136
EP131T: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	164
EP132T: Base/Neutral Extractable Surrogates			
2-Fluorobiphenyl	321-60-8	30	115
Anthracene-d10	1719-06-8	27	133
4-Terphenyl-d14	1718-51-0	18	137
EP201S: Carbamate Surrogate			
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	59	137
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2,4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

QUALITY CONTROL REPORT

Work Order	: EP1210303	Page	: 1 of 28
Amendment	: 1		
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: MR ALAN FOLEY	Contact	: Scott James
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: alan.foley@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: I12147 Burswood Stadium	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Burswood Stadium		
C-O-C number	: ----	Date Samples Received	: 10-DEC-2012
Sampler	: JA and AJ	Issue Date	: 01-MAY-2013
Order number	: ----		
Quote number	: EP/689/12 V4	No. of samples received	: 12
		No. of samples analysed	: 12

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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



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.

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



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 Laboratory 825

Accredited for
 compliance with
 ISO/IEC 17025.

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Agnes Szilagyi	Senior Organic Chemist	Perth Inorganics Perth Organics
Canhuang Ke	Metals Instrument Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics Perth Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Organics Sydney Organics
Hamish Murray	Laboratory Supervisor	Newcastle
Jonathon Angell	Inorganic Coordinator	Stafford Minerals - AY
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Peter Rennie	Asbestos Identifier	Newcastle
Scott James	Laboratory Manager	Perth Inorganics



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: 2643125)									
EP1210303-001	T01C01	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	54.0	52.9	2.0	0% - 20%
EP1210303-010	T11C01	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	60.8	58.9	3.0	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 2648574)									
EP1210260-001	Anonymous	EG005T: Chromium	7440-47-3	2	mg/kg	121	117	3.1	0% - 20%
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	17	17	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	20	18	8.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	7	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	90	109	19.0	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	8	7	0.0	No Limit
		EG005T: Aluminium	7429-90-5	50	mg/kg	1760	1760	0.0	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	14800	14200	4.8	0% - 20%
EG005T: Magnesium	7439-95-4	50	mg/kg	5330	4790	10.7	0% - 20%		
EP1210303-004	T04C01	EG005T: Chromium	7440-47-3	2	mg/kg	32	34	3.7	0% - 50%
		EG005T: Molybdenum	7439-98-7	2	mg/kg	6	6	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	10	11	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	9	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	37	44	16.1	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	38	44	15.9	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	174	180	3.8	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	156	154	1.1	0% - 20%
		EG005T: Aluminium	7429-90-5	50	mg/kg	9710	9730	0.2	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	60	60	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	27300	27600	1.3	0% - 20%
EG005T: Magnesium	7439-95-4	50	mg/kg	4320	4280	1.0	0% - 20%		
EG020T: Total Metals by ICP-MS (QC Lot: 2648576)									
EP1210303-001	T01C01	EG020Y-T: Cadmium	7440-43-9	0.1	mg/kg	0.4	0.4	0.0	No Limit
EP1210303-004	T04C01	EG020Y-T: Cadmium	7440-43-9	0.1	mg/kg	0.3	<0.1	102	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2648575)									
EP1210260-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	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 (%)	
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2648575) - continued										
EP1210303-004	T04C01	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit	
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 2643081)										
EP1210303-001	T01C01	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit	
EP1210303-011	T13C01	EK026SF: Total Cyanide	57-12-5	1	mg/kg	2	1	0.0	No Limit	
EK055: Ammonia as N (QC Lot: 2650997)										
EP1210303-001	T01C01	EK055: Ammonia as N	7664-41-7	20	mg/kg	40	40	0.0	No Limit	
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 2645734)										
EP1210303-001	T01C01	EK057G: Nitrite as N (Sol.)	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 2645735)										
EP1210303-001	T01C01	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 2645739)										
EP1210224-158	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	210	190	12.9	0% - 50%	
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 2645740)										
EP1210224-158	Anonymous	EK067G: Total Phosphorus as P	----	2	mg/kg	263	256	2.8	0% - 20%	
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 2645736)										
EP1210303-001	T01C01	EK071G: Reactive Phosphorus as P	14265-44-2	0.1	mg/kg	0.5	0.5	0.0	0% - 20%	
EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 2645968)										
EP1210303-001	T01C01	EP003: Total Organic Carbon	----	0.02	%	2.67	2.57	3.6	0% - 20%	
EP1210303-011	T13C01	EP003: Total Organic Carbon	----	0.02	%	3.16	3.18	0.5	0% - 20%	
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2649069)										
EP1210303-001	T01C01	EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP074B: Oxygenated Compounds (QC Lot: 2649069)										
EP1210303-001	T01C01	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit	
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	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 (%)
EP074B: Oxygenated Compounds (QC Lot: 2649069) - continued									
EP1210303-001	T01C01	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 2649069)									
EP1210303-001	T01C01	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074D: Fumigants (QC Lot: 2649069)									
EP1210303-001	T01C01	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2649069)									
EP1210303-001	T01C01	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 2649069)									



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 (%)
EP074F: Halogenated Aromatic Compounds (QC Lot: 2649069) - continued									
EP1210303-001	T01C01	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 2649069)									
EP1210303-001	T01C01	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 2649069)									
EP1210303-001	T01C01	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 2651044)									
EP1210303-001	T01C01	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
		EP1210303-011	T13C01	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5
EP075(SIM): 2-Chlorophenol	95-57-8			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Methylphenol	95-48-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2-Nitrophenol	88-75-5			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dimethylphenol	105-67-9			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4-Dichlorophenol	120-83-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,6-Dichlorophenol	87-65-0			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4			0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	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)A: Phenolic Compounds (QC Lot: 2651044) - continued									
EP1210303-011	T13C01	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QC Lot: 2649070)									
EP1210303-001	T01C01	EP080-SD: C6 - C9 Fraction	----	3	mg/kg	<3	8	87.2	No Limit
EP1210303-011	T13C01	EP080-SD: C6 - C9 Fraction	----	3	mg/kg	<3	<3	0.0	No Limit
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QC Lot: 2652217)									
EP1210303-001	T01C01	EP071-SD: C10 - C14 Fraction	----	3	mg/kg	<3	<3	0.0	No Limit
		EP071-SD: C15 - C28 Fraction	----	3	mg/kg	37	39	5.7	0% - 50%
		EP071-SD: C29 - C36 Fraction	----	5	mg/kg	38	40	5.6	No Limit
EP1210303-011	T13C01	EP071-SD: C10 - C14 Fraction	----	3	mg/kg	<3	<3	0.0	No Limit
		EP071-SD: C15 - C28 Fraction	----	3	mg/kg	47	53	11.4	0% - 50%
		EP071-SD: C29 - C36 Fraction	----	5	mg/kg	58	57	0.0	0% - 50%
EP080-SD: BTEXN (QC Lot: 2649070)									
EP1210303-001	T01C01	EP080-SD: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: meta- & para-Xylene	108-38-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
			106-42-3						
	EP080-SD: ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
EP1210303-011	T13C01	EP080-SD: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: meta- & para-Xylene	108-38-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
			106-42-3						
	EP080-SD: ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
EP130A: Organophosphorus Pesticides (Ultra-trace) (QC Lot: 2652220)									
EP1210303-001	T01C01	EP130: Bromophos-ethyl	4824-78-6	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Carbophenothion	786-19-6	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Chlorpyrifos	2921-88-2	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Demeton-S-methyl	919-86-8	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Diazinon	333-41-5	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Dichlorvos	62-73-7	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Dimethoate	60-51-5	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Ethion	563-12-2	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Fenamiphos	22224-92-6	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Fenthion	55-38-9	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Malathion	121-75-5	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Azinphos Methyl	86-50-0	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Monocrotophos	6923-22-4	10	µg/kg	<10	<10	0.0	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 (%)
EP130A: Organophosphorus Pesticides (Ultra-trace) (QC Lot: 2652220) - continued									
EP1210303-001	T01C01	EP130: Parathion	56-38-2	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Parathion-methyl	298-00-0	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Pirimphos-ethyl	23505-41-1	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Prothiofos	34643-46-4	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<10.0	<10.0	0.0	No Limit
EP1210303-011	T13C01	EP130: Bromophos-ethyl	4824-78-6	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Carbophenothion	786-19-6	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Chlorpyrifos	2921-88-2	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Demeton-S-methyl	919-86-8	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Diazinon	333-41-5	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Dichlorvos	62-73-7	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Dimethoate	60-51-5	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Ethion	563-12-2	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Fenamiphos	22224-92-6	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Fenthion	55-38-9	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Malathion	121-75-5	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Azinphos Methyl	86-50-0	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Monocrotophos	6923-22-4	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Parathion	56-38-2	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Parathion-methyl	298-00-0	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Pirimphos-ethyl	23505-41-1	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Prothiofos	34643-46-4	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<10.0	<10.0	0.0	No Limit
EP131A: Organochlorine Pesticides (QC Lot: 2652221)									
EP1210303-001	T01C01	EP131A: gamma-BHC	58-89-9	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: cis-Chlordane	5103-71-9	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: trans-Chlordane	5103-74-2	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: Total Chlordane (sum)	----	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: Aldrin	309-00-2	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: alpha-BHC	319-84-6	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: beta-BHC	319-85-7	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: delta-BHC	319-86-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: 4,4'-DDD	72-54-8	0.50	µg/kg	0.98	0.78	22.8	No Limit
		EP131A: 4,4'-DDE	72-55-9	0.50	µg/kg	2.30	1.35	52.0	No Limit
		EP131A: 4,4'-DDT	50-29-3	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Sum of DDD + DDE + DDT	----	0.50	µg/kg	3.28	2.13	42.5	No Limit
		EP131A: Dieldrin	60-57-1	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: alpha-Endosulfan	959-98-8	0.50	µg/kg	<0.50	<0.50	0.0	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 (%)
EP131A: Organochlorine Pesticides (QC Lot: 2652221) - continued									
EP1210303-001	T01C01	EP131A: beta-Endosulfan	33213-65-9	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endosulfan sulfate	1031-07-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endosulfan (sum)	115-29-7	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin	72-20-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin aldehyde	7421-93-4	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin ketone	53494-70-5	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Heptachlor	76-44-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Heptachlor epoxide	1024-57-3	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Methoxychlor	72-43-5	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
EP1210303-011	T13C01	EP131A: gamma-BHC	58-89-9	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: cis-Chlordane	5103-71-9	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: trans-Chlordane	5103-74-2	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: Total Chlordane (sum)	----	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: Aldrin	309-00-2	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: alpha-BHC	319-84-6	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: beta-BHC	319-85-7	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: delta-BHC	319-86-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: 4,4'-DDD	72-54-8	0.50	µg/kg	1.36	1.04	26.9	No Limit
		EP131A: 4,4'-DDE	72-55-9	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: 4,4'-DDT	50-29-3	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Sum of DDD + DDE + DDT	----	0.50	µg/kg	1.36	1.04	26.7	No Limit
		EP131A: Dieldrin	60-57-1	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: alpha-Endosulfan	959-98-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: beta-Endosulfan	33213-65-9	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endosulfan sulfate	1031-07-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endosulfan (sum)	115-29-7	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin	72-20-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin aldehyde	7421-93-4	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin ketone	53494-70-5	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Heptachlor	76-44-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Heptachlor epoxide	1024-57-3	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Methoxychlor	72-43-5	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
EP131B: Polychlorinated Biphenyls (as Aroclors) (QC Lot: 2652222)									
EP1210303-001	T01C01	EP131B: Total Polychlorinated biphenyls	----	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1016	12674-11-2	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1221	11104-28-2	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1232	11141-16-5	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1242	53469-21-9	5.0	µg/kg	<5.0	<5.0	0.0	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 (%)
EP131B: Polychlorinated Biphenyls (as Aroclors) (QC Lot: 2652222) - continued									
EP1210303-001	T01C01	EP131B: Aroclor 1248	12672-29-6	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1254	11097-69-1	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1260	11096-82-5	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
EP1210303-011	T13C01	EP131B: Total Polychlorinated biphenyls	----	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1016	12674-11-2	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1221	11104-28-2	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1232	11141-16-5	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1242	53469-21-9	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1248	12672-29-6	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1254	11097-69-1	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1260	11096-82-5	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2652216)									
EP1210303-001	T01C01	EP132B-SD: Acenaphthylene	208-96-8	4	µg/kg	49	31	45.6	0% - 50%
		EP132B-SD: Acenaphthene	83-32-9	4	µg/kg	6	5	0.0	No Limit
		EP132B-SD: Fluorene	86-73-7	4	µg/kg	10	9	18.2	No Limit
		EP132B-SD: Phenanthrene	85-01-8	4	µg/kg	22	27	18.7	No Limit
		EP132B-SD: Anthracene	120-12-7	4	µg/kg	28	20	35.7	No Limit
		EP132B-SD: Fluoranthene	206-44-0	4	µg/kg	92	81	12.0	0% - 20%
		EP132B-SD: Pyrene	129-00-0	4	µg/kg	137	117	15.6	0% - 20%
		EP132B-SD: Benz(a)anthracene	56-55-3	4	µg/kg	50	42	17.4	0% - 50%
		EP132B-SD: Chrysene	218-01-9	4	µg/kg	46	44	6.3	0% - 50%
		EP132B-SD: Benzo(b)fluoranthene	205-99-2	4	µg/kg	73	55	27.2	0% - 50%
		EP132B-SD: Benzo(k)fluoranthene	207-08-9	4	µg/kg	32	23	32.7	No Limit
		EP132B-SD: Benzo(e)pyrene	192-97-2	4	µg/kg	47	34	31.6	0% - 50%
		EP132B-SD: Benzo(a)pyrene	50-32-8	4	µg/kg	92	69	28.2	0% - 20%
		EP132B-SD: Perylene	198-55-0	4	µg/kg	95	27	# 112	0% - 20%
		EP132B-SD: Benzo(g,h,i)perylene	191-24-2	4	µg/kg	54	43	23.2	0% - 50%
		EP132B-SD: Dibenz(a,h)anthracene	53-70-3	4	µg/kg	28	16	57.2	No Limit
		EP132B-SD: Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	58	45	25.0	0% - 50%
		EP132B-SD: Sum of PAHs	----	4	µg/kg	978	736	# 28.2	0% - 20%
		EP132B-SD: Naphthalene	91-20-3	5	µg/kg	19	18	0.0	No Limit
		EP132B-SD: 2-Methylnaphthalene	91-57-6	5	µg/kg	8	10	22.7	No Limit
EP132B-SD: Coronene	191-07-1	5	µg/kg	32	20	45.5	No Limit		
EP1210303-011	T13C01	EP132B-SD: Acenaphthylene	208-96-8	4	µg/kg	202	152	28.2	0% - 20%
		EP132B-SD: Acenaphthene	83-32-9	4	µg/kg	<50	<50	0.0	0% - 50%
		EP132B-SD: Fluorene	86-73-7	4	µg/kg	<50	<50	0.0	0% - 50%
		EP132B-SD: Phenanthrene	85-01-8	4	µg/kg	98	78	23.4	0% - 20%
		EP132B-SD: Anthracene	120-12-7	4	µg/kg	120	88	30.7	0% - 20%
		EP132B-SD: Fluoranthene	206-44-0	4	µg/kg	312	238	27.0	0% - 20%
EP132B-SD: Pyrene	129-00-0	4	µg/kg	457	357	24.6	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 (%)
EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2652216) - continued									
EP1210303-011	T13C01	EP132B-SD: Benz(a)anthracene	56-55-3	4	µg/kg	213	163	26.6	0% - 20%
		EP132B-SD: Chrysene	218-01-9	4	µg/kg	236	182	26.0	0% - 20%
		EP132B-SD: Benzo(b)fluoranthene	205-99-2	4	µg/kg	338	245	31.8	0% - 20%
		EP132B-SD: Benzo(k)fluoranthene	207-08-9	4	µg/kg	186	136	31.0	0% - 20%
		EP132B-SD: Benzo(e)pyrene	192-97-2	4	µg/kg	222	170	26.1	0% - 20%
		EP132B-SD: Benzo(a)pyrene	50-32-8	4	µg/kg	409	296	32.0	0% - 20%
		EP132B-SD: Perylene	198-55-0	4	µg/kg	80	59	30.4	0% - 50%
		EP132B-SD: Benzo(g,h,i)perylene	191-24-2	4	µg/kg	236	147	46.5	0% - 20%
		EP132B-SD: Dibenz(a,h)anthracene	53-70-3	4	µg/kg	80	61	27.1	0% - 20%
		EP132B-SD: Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	212	120	55.6	0% - 20%
		EP132B-SD: Sum of PAHs	----	4	µg/kg	3560	2600	# 31.0	0% - 20%
		EP132B-SD: Naphthalene	91-20-3	5	µg/kg	94	59	45.8	0% - 50%
		EP132B-SD: 2-Methylnaphthalene	91-57-6	5	µg/kg	<50	53	5.1	0% - 50%
EP132B-SD: Coronene	191-07-1	5	µg/kg	66	<50	27.6	0% - 50%		
EP201: Carbamate Pesticides by LCMS (QC Lot: 2643930)									
EP1210136-044	Anonymous	EP201: Oxamyl	23135-22-0	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Methomyl	16752-77-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: 3-Hydroxy Carbofuran	16655-82-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Aldicarb	116-06-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Bendiocarb	22781-23-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Thiodicarb	59669-26-0	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Carbofuran	1563-66-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Carbaryl	63-25-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Methiocarb	2032-65-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
EP1210136-092	Anonymous	EP201: Oxamyl	23135-22-0	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Methomyl	16752-77-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: 3-Hydroxy Carbofuran	16655-82-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Aldicarb	116-06-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Bendiocarb	22781-23-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Thiodicarb	59669-26-0	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Carbofuran	1563-66-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Carbaryl	63-25-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Methiocarb	2032-65-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2643934)									
EP1210136-046	Anonymous	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2,4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2,4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.0	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 (%)
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2643934) - continued									
EP1210136-046	Anonymous	EP202: 2.4-D	94-75-7	0.02	mg/kg	0.04	0.04	0.0	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
EP1210136-092	Anonymous	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	0.02	<0.02	0.0	0% - 20%
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.0	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 Sample (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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 2648574)									
EG005T: Aluminium	7429-90-5	50	mg/kg	<50	----	----	----	----	
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	13.75 mg/kg	99.4	85.5	116	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	61.6 mg/kg	100	90	112	
EG005T: Copper	7440-50-8	5	mg/kg	<5	54.7 mg/kg	106	93	115	
EG005T: Iron	7439-89-6	50	mg/kg	<50	----	----	----	----	
EG005T: Lead	7439-92-1	5	mg/kg	<5	55.5 mg/kg	100	88.8	111	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	----	----	----	----	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	----	----	----	----	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.1 mg/kg	104	91	115	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----	
EG005T: Tin	7440-31-5	5	mg/kg	<5	----	----	----	----	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	105 mg/kg	98.1	86.6	113	
EG005T: Magnesium	7439-95-4	50	mg/kg	<50	----	----	----	----	
EG020T: Total Metals by ICP-MS (QCLot: 2648576)									
EG020Y-T: Cadmium	7440-43-9	0.1	mg/kg	<0.1	2.82 mg/kg	97.7	70	130	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2648575)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	1.36 mg/kg	105	75.4	121	
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2643081)									
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	101	70	130	
EK055: Ammonia as N (QCLot: 2650997)									
EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	5 mg/kg	100	70	130	
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2645734)									
EK057G: Nitrite as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	98.6	89	121	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2645735)									
EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	104	90	112	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2645739)									
EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	1000 mg/kg	80.7	70	130	
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2645740)									
EK067G: Total Phosphorus as P	----	2	mg/kg	<2	440 mg/kg	81.0	70	130	
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2645736)									
EK071G: Reactive Phosphorus as P	14265-44-2	0.1	mg/kg	<0.1	2.5 mg/kg	97.2	92.3	112	
EP003: Total Organic Carbon (TOC) in Soil (QCLot: 2645968)									



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP003: Total Organic Carbon (TOC) in Soil (QCLot: 2645968) - continued									
EP003: Total Organic Carbon	----	0.02	%	<0.02	100 %	100	70	130	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2649069)									
EP074: Benzene	71-43-2	0.5	mg/kg	<0.5	1 mg/kg	97.9	68	128	
EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	78.2	65	133	
EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	80.6	65	127	
EP074: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	80.4	69	127	
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	83.3	64	126	
EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	83.5	70	128	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	78.2	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	80.0	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	80.9	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	76.8	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	83.3	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	78.2	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	79.8	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	78.2	61	131	
EP074B: Oxygenated Compounds (QCLot: 2649069)									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	95.6	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	90.9	44	158	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	106	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	88.4	54	136	
		5	mg/kg	<5	----	----	----	----	
EP074C: Sulfonated Compounds (QCLot: 2649069)									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	77.7	54	126	
EP074D: Fumigants (QCLot: 2649069)									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	89.5	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	104	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	110	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	107	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	76.1	66	126	
EP074E: Halogenated Aliphatic Compounds (QCLot: 2649069)									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	40.5	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	73.6	41	141	
		5	mg/kg	<5	----	----	----	----	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 2649069) - continued									
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	90.6	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	102	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	84.2	47	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	84.6	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	84.8	54	136	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	78.4	43	129	
EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	89.5	62	130	
EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	94.5	66	132	
EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	96.8	66	132	
EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	84.5	62	126	
EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	96.0	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	97.7	59	125	
EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	115	70	132	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	101	65	131	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	101	65	127	
EP074: 1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	92.0	70	130	
EP074: 1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	90.7	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	76.4	67	143	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	91.9	62	122	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	79.7	54	128	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	78.9	55	129	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	79.5	56	132	
EP074: 1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	83.8	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	77.7	19.8	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	76.8	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	73.6	48	136	
EP074F: Halogenated Aromatic Compounds (QCLot: 2649069)									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	81.9	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	80.5	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	82.9	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	83.0	62	130	
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	81.0	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	80.5	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	81.0	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	83.7	54	134	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074F: Halogenated Aromatic Compounds (QCLot: 2649069) - continued									
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	81.7	60	132	
EP074G: Trihalomethanes (QCLot: 2649069)									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	100	65	131	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	107	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	93.3	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	84.4	60	126	
EP074H: Naphthalene (QCLot: 2649069)									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	83.1	63	133	
		5	mg/kg	<5	----	----	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 2651044)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	10 mg/kg	81.5	56	128	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	10 mg/kg	83.1	54	128	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	10 mg/kg	96.7	48	126	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	20 mg/kg	102	59	127	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	10 mg/kg	91.9	52	130	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	10 mg/kg	102	38	128	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	10 mg/kg	105	51	129	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	10 mg/kg	105	58	130	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	10 mg/kg	112	54	136	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	10 mg/kg	114	49	135	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	10 mg/kg	107	55	135	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	10 mg/kg	80.4	26.4	146	
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2649070)									
EP080-SD: C6 - C9 Fraction	----	3	mg/kg	<3	26 mg/kg	88.0	61	133	
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2652217)									
EP071-SD: C10 - C14 Fraction	----	3	mg/kg	<3	5 mg/kg	95.0	75.2	116	
EP071-SD: C15 - C28 Fraction	----	3	mg/kg	<3	7.5 mg/kg	105	75.3	113	
EP071-SD: C29 - C36 Fraction	----	5	mg/kg	<5	5 mg/kg	100	72.6	117	
EP080-SD: BTEXN (QCLot: 2649070)									
EP080-SD: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	74.5	66	122	
EP080-SD: Toluene	108-88-3	0.2	mg/kg	<0.2	1 mg/kg	73.7	69	122	
EP080-SD: Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	1 mg/kg	72.9	66	126	
EP080-SD: meta- & para-Xylene	108-38-3	0.2	mg/kg	<0.2	2 mg/kg	69.1	59	129	
	106-42-3								
EP080-SD: ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	1 mg/kg	74.1	66	126	
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2652220)									
EP130: Bromophos-ethyl	4824-78-6	10	µg/kg	<10	50 µg/kg	89.7	36.9	142	
EP130: Carbophenothion	786-19-6	10	µg/kg	<10	50 µg/kg	121	0.5	157	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2652220) - continued									
EP130: Chlorfenvinphos (E)	18708-86-6	10	µg/kg	<10.0	5 µg/kg	73.2	50.3	137	
EP130: Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<10	50 µg/kg	83.9	55.9	152	
EP130: Chlorpyrifos	2921-88-2	10	µg/kg	<10	50 µg/kg	75.5	49	140	
EP130: Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<10	50 µg/kg	76.6	28.1	142	
EP130: Demeton-S-methyl	919-86-8	10	µg/kg	<10	50 µg/kg	131	36.6	172	
EP130: Diazinon	333-41-5	10	µg/kg	<10	50 µg/kg	83.6	37.2	148	
EP130: Dichlorvos	62-73-7	10	µg/kg	<10	50 µg/kg	62.2	32.7	153	
EP130: Dimethoate	60-51-5	10	µg/kg	<10	50 µg/kg	102	33.2	150	
EP130: Ethion	563-12-2	10	µg/kg	<10	50 µg/kg	78.8	44	146	
EP130: Fenamiphos	22224-92-6	10	µg/kg	<10	50 µg/kg	77.8	3.08	162	
EP130: Fenthion	55-38-9	10	µg/kg	<10	50 µg/kg	72.5	10.6	157	
EP130: Malathion	121-75-5	10	µg/kg	<10	50 µg/kg	108	38.1	143	
EP130: Azinphos Methyl	86-50-0	10	µg/kg	<10	50 µg/kg	64.6	8.13	159	
EP130: Monocrotophos	6923-22-4	10	µg/kg	<10	50 µg/kg	97.3	19.7	176	
EP130: Parathion	56-38-2	10	µg/kg	<10	50 µg/kg	78.2	39.2	145	
EP130: Parathion-methyl	298-00-0	10	µg/kg	<10	50 µg/kg	91.8	23.5	152	
EP130: Pirimphos-ethyl	23505-41-1	10	µg/kg	<10	50 µg/kg	67.7	47.1	141	
EP130: Prothiofos	34643-46-4	10	µg/kg	<10	50 µg/kg	73.9	36.1	148	
EP131A: Organochlorine Pesticides (QCLot: 2652221)									
EP131A: Aldrin	309-00-2	0.5	µg/kg	<0.50	5 µg/kg	120	31.7	140	
EP131A: alpha-BHC	319-84-6	0.5	µg/kg	<0.50	5 µg/kg	128	24.5	150	
EP131A: beta-BHC	319-85-7	0.5	µg/kg	<0.50	5 µg/kg	95.9	36.9	139	
EP131A: delta-BHC	319-86-8	0.5	µg/kg	<0.50	5 µg/kg	62.2	38.2	137	
EP131A: 4.4'-DDD	72-54-8	0.5	µg/kg	<0.50	5 µg/kg	110	42.5	141	
EP131A: 4.4'-DDE	72-55-9	0.5	µg/kg	<0.50	5 µg/kg	82.4	34.8	140	
EP131A: 4.4'-DDT	50-29-3	0.5	µg/kg	<0.50	5 µg/kg	83.7	38	143	
EP131A: Sum of DDD + DDE + DDT	----	0.5	µg/kg	<0.50	----	----	----	----	
EP131A: Dieldrin	60-57-1	0.5	µg/kg	<0.50	5 µg/kg	101	43.2	134	
EP131A: alpha-Endosulfan	959-98-8	0.5	µg/kg	<0.50	5 µg/kg	106	23.7	139	
EP131A: beta-Endosulfan	33213-65-9	0.5	µg/kg	<0.50	5 µg/kg	113	35.8	138	
EP131A: Endosulfan sulfate	1031-07-8	0.5	µg/kg	<0.50	5 µg/kg	90.3	7.45	158	
EP131A: Endosulfan (sum)	115-29-7	0.5	µg/kg	<0.50	----	----	----	----	
EP131A: Endrin	72-20-8	0.5	µg/kg	<0.50	5 µg/kg	67.6	21.6	162	
EP131A: Endrin aldehyde	7421-93-4	0.5	µg/kg	<0.50	5 µg/kg	86.9	19.3	131	
EP131A: Endrin ketone	53494-70-5	0.5	µg/kg	<0.50	5 µg/kg	119	17.9	141	
EP131A: Heptachlor	76-44-8	0.5	µg/kg	<0.50	5 µg/kg	143	31	153	
EP131A: Heptachlor epoxide	1024-57-3	0.5	µg/kg	<0.50	5 µg/kg	115	34.3	138	
EP131A: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/kg	<0.50	5 µg/kg	92.4	18.6	146	
EP131A: gamma-BHC	58-89-9	0.5	µg/kg	<0.50	5 µg/kg	131	30.7	145	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP131A: Organochlorine Pesticides (QCLot: 2652221) - continued									
EP131A: Methoxychlor	72-43-5	0.5	µg/kg	<0.50	5 µg/kg	66.0	15	157	
EP131A: cis-Chlordane	5103-71-9	0.5	µg/kg	<0.50	5 µg/kg	118	22.3	145	
EP131A: trans-Chlordane	5103-74-2	0.5	µg/kg	<0.50	5 µg/kg	104	42.4	139	
EP131A: Total Chlordane (sum)	----	0.5	µg/kg	<0.50	----	----	----	----	
EP131B: Polychlorinated Biphenyls (as Aroclors) (QCLot: 2652222)									
EP131B: Total Polychlorinated biphenyls	----	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1016	12674-11-2	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1221	11104-28-2	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1232	11141-16-5	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1242	53469-21-9	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1248	12672-29-6	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1254	11097-69-1	5	µg/kg	<5.0	50 µg/kg	100	61.3	121	
EP131B: Aroclor 1260	11096-82-5	5	µg/kg	<5.0	----	----	----	----	
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2652216)									
EP132B-SD: Naphthalene	91-20-3	5	µg/kg	<5	25 µg/kg	107	----	----	
EP132B-SD: 2-Methylnaphthalene	91-57-6	5	µg/kg	<5	25 µg/kg	112	----	----	
EP132B-SD: Acenaphthylene	208-96-8	4	µg/kg	<4	25 µg/kg	107	----	----	
EP132B-SD: Acenaphthene	83-32-9	4	µg/kg	<4	25 µg/kg	107	----	----	
EP132B-SD: Fluorene	86-73-7	4	µg/kg	<4	25 µg/kg	111	----	----	
EP132B-SD: Phenanthrene	85-01-8	4	µg/kg	<4	25 µg/kg	104	----	----	
EP132B-SD: Anthracene	120-12-7	4	µg/kg	<4	25 µg/kg	103	----	----	
EP132B-SD: Fluoranthene	206-44-0	4	µg/kg	<4	25 µg/kg	99.9	----	----	
EP132B-SD: Pyrene	129-00-0	4	µg/kg	<4	25 µg/kg	102	----	----	
EP132B-SD: Benz(a)anthracene	56-55-3	4	µg/kg	<4	25 µg/kg	93.1	----	----	
EP132B-SD: Chrysene	218-01-9	4	µg/kg	<4	25 µg/kg	98.7	----	----	
EP132B-SD: Benzo(b)fluoranthene	205-99-2	4	µg/kg	<4	25 µg/kg	96.0	----	----	
EP132B-SD: Benzo(k)fluoranthene	207-08-9	4	µg/kg	<4	25 µg/kg	97.7	----	----	
EP132B-SD: Benzo(e)pyrene	192-97-2	4	µg/kg	<4	25 µg/kg	96.4	----	----	
EP132B-SD: Benzo(a)pyrene	50-32-8	4	µg/kg	<4	25 µg/kg	94.9	----	----	
EP132B-SD: Perylene	198-55-0	4	µg/kg	<4	25 µg/kg	98.1	----	----	
EP132B-SD: Benzo(g,h,i)perylene	191-24-2	4	µg/kg	<4	25 µg/kg	95.0	----	----	
EP132B-SD: Dibenz(a,h)anthracene	53-70-3	4	µg/kg	<4	25 µg/kg	94.4	----	----	
EP132B-SD: Indeno(1,2,3.cd)pyrene	193-39-5	4	µg/kg	<4	25 µg/kg	92.7	----	----	
EP132B-SD: Coronene	191-07-1	5	µg/kg	<5	25 µg/kg	95.2	----	----	
EP132B-SD: Sum of PAHs	----	4	µg/kg	<4	----	----	----	----	
EP201: Carbamate Pesticides by LCMS (QCLot: 2643930)									
EP201: Oxamyl	23135-22-0	0.02	mg/kg	<0.02	0.04 mg/kg	91.3	73.8	152	
EP201: Methomyl	16752-77-5	0.02	mg/kg	<0.02	0.04 mg/kg	113	74.9	145	
EP201: 3-Hydroxy Carbofuran	16655-82-6	0.02	mg/kg	<0.02	0.04 mg/kg	83.7	79.5	146	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP201: Carbamate Pesticides by LCMS (QCLot: 2643930) - continued									
EP201: Aldicarb	116-06-3	0.02	mg/kg	<0.02	0.04 mg/kg	112	82.2	138	
EP201: Bendiocarb	22781-23-3	0.02	mg/kg	<0.02	0.04 mg/kg	99.0	76.4	142	
EP201: Thiodicarb	59669-26-0	0.02	mg/kg	<0.02	0.04 mg/kg	79.9	75.9	148	
EP201: Carbofuran	1563-66-2	0.02	mg/kg	<0.02	0.04 mg/kg	88.2	78.2	140	
EP201: Carbaryl	63-25-2	0.02	mg/kg	<0.02	0.04 mg/kg	87.0	63	139	
EP201: Methiocarb	2032-65-7	0.02	mg/kg	<0.02	0.04 mg/kg	124	70.2	144	
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2643934)									
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	105	54.4	136	
EP202: 2,4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	96.0	45.5	144	
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	130	51.7	146	
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	109	60	140	
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	106	56.8	143	
EP202: 2,4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	108	50	141	
EP202: 2,4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	109	68.5	139	
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	127	50.8	145	
EP202: 2,4,5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	104	40.8	135	
EP202: 2,4,5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	121	57.4	142	
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	101	38.9	147	
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	90.3	48.7	138	
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	85.2	59.4	149	
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	117	53.2	145	

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	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 2648574)							
EP1210303-002	T02C01	EG005T: Aluminium	7429-90-5	50 mg/kg	# Not Determined	70	130
		EG005T: Arsenic	7440-38-2	50 mg/kg	102	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	102	70	130
		EG005T: Copper	7440-50-8	50 mg/kg	108	70	130
		EG005T: Iron	7439-89-6	50 mg/kg	# Not Determined	70	130
		EG005T: Lead	7439-92-1	50 mg/kg	102	70	130
		EG005T: Manganese	7439-96-5	50 mg/kg	104	70	130



Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 2648574) - continued							
EP1210303-002	T02C01	EG005T: Molybdenum	7439-98-7	10 mg/kg	78.1	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	102	70	130
		EG005T: Selenium	7782-49-2	10 mg/kg	100	70	130
		EG005T: Zinc	7440-66-6	50 mg/kg	104	70	130
EG020T: Total Metals by ICP-MS (QCLot: 2648576)							
EP1210303-002	T02C01	EG020Y-T: Cadmium	7440-43-9	50 mg/kg	100	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2648575)							
EP1210303-002	T02C01	EG035T: Mercury	7439-97-6	10 mg/kg	109	70	130
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2643081)							
EP1210303-002	T02C01	EK026SF: Total Cyanide	57-12-5	200 mg/kg	96.6	70	130
EK055: Ammonia as N (QCLot: 2650997)							
EP1210303-004	T04C01	EK055: Ammonia as N	7664-41-7	50 mg/kg	109	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2645734)							
EP1210303-004	T04C01	EK057G: Nitrite as N (Sol.)	----	3 mg/kg	84.0	70	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2645735)							
EP1210303-004	T04C01	EK059G: Nitrite + Nitrate as N (Sol.)	----	3 mg/kg	83.5	70	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2645739)							
EP1210298-004	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	500 mg/kg	128	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2645740)							
EP1210298-004	Anonymous	EK067G: Total Phosphorus as P	----	100 mg/kg	# Not Determined	70	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2645736)							
EP1210303-004	T04C01	EK071G: Reactive Phosphorus as P	14265-44-2	2.5 mg/kg	112	70	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2649069)							
EP1210303-001	T01C01	EP074: Benzene	71-43-2	2.5 mg/kg	92.6	70	130
		EP074: Toluene	108-88-3	2.5 mg/kg	82.1	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 2649069)							
EP1210303-001	T01C01	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	83.8	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	90.1	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 2649069)							
EP1210303-001	T01C01	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	83.9	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 2651044)							
EP1210303-002	T02C01	EP075(SIM): Phenol	108-95-2	10 mg/kg	105	73.4	135
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	88.7	71.7	136
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	109	62.8	137



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)A: Phenolic Compounds (QCLot: 2651044) - continued							
EP1210303-002	T02C01	EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	10 mg/kg	75.0	73.6	128
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	62.4	18.0	152
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2649070)							
EP1210303-001	T01C01	EP080-SD: C6 - C9 Fraction	----	26 mg/kg	98.6	70	130
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2652217)							
EP1210303-001	T01C01	EP071-SD: C10 - C14 Fraction	----	19.75 mg/kg	71.6	70	130
		EP071-SD: C15 - C28 Fraction	----	87.25 mg/kg	96.2	70	130
		EP071-SD: C29 - C36 Fraction	----	60 mg/kg	107	70	130
EP080-SD: BTEXN (QCLot: 2649070)							
EP1210303-001	T01C01	EP080-SD: Benzene	71-43-2	2.5 mg/kg	99.5	70	130
		EP080-SD: Toluene	108-88-3	2.5 mg/kg	81.4	70	130
		EP080-SD: Ethylbenzene	100-41-4	2.5 mg/kg	84.1	70	130
		EP080-SD: meta- & para-Xylene	108-38-3	2.5 mg/kg	82.7	70	130
		EP080-SD: ortho-Xylene	106-42-3	2.5 mg/kg	87.4	70	130
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2652220)							
EP1210303-001	T01C01	EP130: Bromophos-ethyl	4824-78-6	50 µg/kg	67.9	36.9	142
		EP130: Carbophenothion	786-19-6	50 µg/kg	74.5	0.5	157
		EP130: Chlorfenvinphos (E)	18708-86-6	5 µg/kg	51.6	50.3	137
		EP130: Chlorfenvinphos (Z)	18708-87-7	50 µg/kg	61.6	55.9	152
		EP130: Chlorpyrifos	2921-88-2	50 µg/kg	66.9	49	140
		EP130: Chlorpyrifos-methyl	5598-13-0	50 µg/kg	69.2	28.1	142
		EP130: Demeton-S-methyl	919-86-8	50 µg/kg	37.9	36.6	172
		EP130: Diazinon	333-41-5	50 µg/kg	70.5	37.2	148
		EP130: Dichlorvos	62-73-7	50 µg/kg	39.9	32.7	153
		EP130: Dimethoate	60-51-5	50 µg/kg	43.8	33.2	150
		EP130: Ethion	563-12-2	50 µg/kg	62.6	44	146
		EP130: Fenamiphos	22224-92-6	50 µg/kg	49.5	3.08	162
		EP130: Fenthion	55-38-9	50 µg/kg	28.7	10.6	157
		EP130: Malathion	121-75-5	50 µg/kg	75.5	38.1	143
		EP130: Azinphos Methyl	86-50-0	50 µg/kg	44.2	8.13	159
		EP130: Monocrotophos	6923-22-4	50 µg/kg	59.8	19.7	176
		EP130: Parathion	56-38-2	50 µg/kg	67.5	39.2	145
		EP130: Parathion-methyl	298-00-0	50 µg/kg	75.1	23.5	152
		EP130: Pirimphos-ethyl	23505-41-1	50 µg/kg	56.4	47.1	141
		EP130: Prothiofos	34643-46-4	50 µg/kg	55.1	36.1	148
EP131A: Organochlorine Pesticides (QCLot: 2652221)							
EP1210303-001	T01C01	EP131A: Aldrin	309-00-2	5 µg/kg	39.4	31.7	140



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
EP131A: Organochlorine Pesticides (QCLot: 2652221) - continued							
EP1210303-001	T01C01	EP131A: alpha-BHC	319-84-6	5 µg/kg	79.7	24.5	150
		EP131A: beta-BHC	319-85-7	5 µg/kg	79.5	36.9	139
		EP131A: delta-BHC	319-86-8	5 µg/kg	72.5	38.2	137
		EP131A: 4,4'-DDD	72-54-8	5 µg/kg	58.6	42.5	141
		EP131A: 4,4'-DDE	72-55-9	5 µg/kg	41.1	34.8	140
		EP131A: 4,4'-DDT	50-29-3	5 µg/kg	65.5	38	143
		EP131A: Dieldrin	60-57-1	5 µg/kg	46.2	43.2	134
		EP131A: alpha-Endosulfan	959-98-8	5 µg/kg	62.2	23.7	139
		EP131A: beta-Endosulfan	33213-65-9	5 µg/kg	73.6	35.8	138
		EP131A: Endosulfan sulfate	1031-07-8	5 µg/kg	68.2	7.45	158
		EP131A: Endrin	72-20-8	5 µg/kg	91.3	21.6	162
		EP131A: Endrin aldehyde	7421-93-4	5 µg/kg	58.4	19.3	131
		EP131A: Endrin ketone	53494-70-5	5 µg/kg	55.6	17.9	141
		EP131A: Heptachlor	76-44-8	5 µg/kg	# Not Determined	31	153
		EP131A: Heptachlor epoxide	1024-57-3	5 µg/kg	69.8	34.3	138
		EP131A: Hexachlorobenzene (HCB)	118-74-1	5 µg/kg	67.7	18.6	146
		EP131A: gamma-BHC	58-89-9	5 µg/kg	# Not Determined	30.7	145
		EP131A: Methoxychlor	72-43-5	5 µg/kg	73.9	15	157
EP131A: cis-Chlordane	5103-71-9	5 µg/kg	63.4	22.3	145		
EP131A: trans-Chlordane	5103-74-2	5 µg/kg	62.9	42.4	139		
EP131B: Polychlorinated Biphenyls (as Aroclors) (QCLot: 2652222)							
EP1210303-001	T01C01	EP131B: Aroclor 1254	11097-69-1	50 µg/kg	68.8	61.3	121
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2652216)							
EP1210303-001	T01C01	EP132B-SD: Naphthalene	91-20-3	25 µg/kg	82.7	70	130
		EP132B-SD: 2-Methylnaphthalene	91-57-6	25 µg/kg	101	70	130
		EP132B-SD: Acenaphthylene	208-96-8	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Acenaphthene	83-32-9	25 µg/kg	109	70	130
		EP132B-SD: Fluorene	86-73-7	25 µg/kg	123	70	130
		EP132B-SD: Phenanthrene	85-01-8	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Anthracene	120-12-7	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Fluoranthene	206-44-0	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Pyrene	129-00-0	25 µg/kg	# Not Determined	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
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2652216) - continued							
EP1210303-001	T01C01	EP132B-SD: Benz(a)anthracene	56-55-3	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Chrysene	218-01-9	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Benzo(b)fluoranthene	205-99-2	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Benzo(k)fluoranthene	207-08-9	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Benzo(e)pyrene	192-97-2	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Benzo(a)pyrene	50-32-8	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Perylene	198-55-0	25 µg/kg	84.1	70	130
		EP132B-SD: Benzo(g,h,i)perylene	191-24-2	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Dibenz(a,h)anthracene	53-70-3	25 µg/kg	97.7	70	130
		EP132B-SD: Indeno(1.2.3.cd)pyrene	193-39-5	25 µg/kg	115	70	130
		EP132B-SD: Coronene	191-07-1	25 µg/kg	119	70	130
EP201: Carbamate Pesticides by LCMS (QCLot: 2643930)							
EP1210136-046	Anonymous	EP201: Oxamyl	23135-22-0	0.04 mg/kg	117	74	152
		EP201: Methomyl	16752-77-5	0.04 mg/kg	120	75	145
		EP201: 3-Hydroxy Carbofuran	16655-82-6	0.04 mg/kg	110	80	146
		EP201: Aldicarb	116-06-3	0.04 mg/kg	110	82	138
		EP201: Bendiocarb	22781-23-3	0.04 mg/kg	88.1	76	142
		EP201: Thiodicarb	59669-26-0	0.04 mg/kg	88.5	76	148
		EP201: Carbofuran	1563-66-2	0.04 mg/kg	120	78	140
		EP201: Carbaryl	63-25-2	0.04 mg/kg	117	63	139
		EP201: Methiocarb	2032-65-7	0.04 mg/kg	136	70	144
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2643934)							
EP1210136-072	Anonymous	EP202: Mecoprop	93-65-2	0.1 mg/kg	81.4	60	140
		EP202: MCPA	94-74-6	0.1 mg/kg	84.5	57	143
		EP202: 2.4-D	94-75-7	0.1 mg/kg	96.5	68	139
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	92.8	51	145
		EP202: 2.4.5-T	93-76-5	0.1 mg/kg	91.1	57	142
		EP202: Picloram	1918-02-1	0.1 mg/kg	59.7	49	138
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	69.7	59	149



The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2643081)										
EP1210303-002	T02C01	EK026SF: Total Cyanide	57-12-5	200 mg/kg	96.6	----	70	130	----	----
EP201: Carbamate Pesticides by LCMS (QCLot: 2643930)										
EP1210136-046	Anonymous	EP201: Oxamyl	23135-22-0	0.04 mg/kg	117	----	74	152	----	----
		EP201: Methomyl	16752-77-5	0.04 mg/kg	120	----	75	145	----	----
		EP201: 3-Hydroxy Carbofuran	16655-82-6	0.04 mg/kg	110	----	80	146	----	----
		EP201: Aldicarb	116-06-3	0.04 mg/kg	110	----	82	138	----	----
		EP201: Bendiocarb	22781-23-3	0.04 mg/kg	88.1	----	76	142	----	----
		EP201: Thiodicarb	59669-26-0	0.04 mg/kg	88.5	----	76	148	----	----
		EP201: Carbofuran	1563-66-2	0.04 mg/kg	120	----	78	140	----	----
		EP201: Carbaryl	63-25-2	0.04 mg/kg	117	----	63	139	----	----
EP201: Methiocarb	2032-65-7	0.04 mg/kg	136	----	70	144	----	----		
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2643934)										
EP1210136-072	Anonymous	EP202: Mecoprop	93-65-2	0.1 mg/kg	81.4	----	60	140	----	----
		EP202: MCPA	94-74-6	0.1 mg/kg	84.5	----	57	143	----	----
		EP202: 2,4-D	94-75-7	0.1 mg/kg	96.5	----	68	139	----	----
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	92.8	----	51	145	----	----
		EP202: 2,4,5-T	93-76-5	0.1 mg/kg	91.1	----	57	142	----	----
		EP202: Picloram	1918-02-1	0.1 mg/kg	59.7	----	49	138	----	----
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	69.7	----	59	149	----	----
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2645734)										
EP1210303-004	T04C01	EK057G: Nitrite as N (Sol.)	----	3 mg/kg	84.0	----	70	130	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2645735)										
EP1210303-004	T04C01	EK059G: Nitrite + Nitrate as N (Sol.)	----	3 mg/kg	83.5	----	70	130	----	----
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2645736)										
EP1210303-004	T04C01	EK071G: Reactive Phosphorus as P	14265-44-2	2.5 mg/kg	112	----	70	130	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2645739)										
EP1210298-004	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	500 mg/kg	128	----	70	130	----	----
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2645740)										
EP1210298-004	Anonymous	EK067G: Total Phosphorus as P	----	100 mg/kg	# Not Determined	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 2648574)										
EP1210303-002	T02C01	EG005T: Aluminium	7429-90-5	50 mg/kg	# Not Determined	----	70	130	----	----
		EG005T: Arsenic	7440-38-2	50 mg/kg	102	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	102	----	70	130	----	----
		EG005T: Copper	7440-50-8	50 mg/kg	108	----	70	130	----	----



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EG005T: Total Metals by ICP-AES (QCLot: 2648574) - continued										
EP1210303-002	T02C01	EG005T: Iron	7439-89-6	50 mg/kg	# Not Determined	----	70	130	----	----
		EG005T: Lead	7439-92-1	50 mg/kg	102	----	70	130	----	----
		EG005T: Manganese	7439-96-5	50 mg/kg	104	----	70	130	----	----
		EG005T: Molybdenum	7439-98-7	10 mg/kg	78.1	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	102	----	70	130	----	----
		EG005T: Selenium	7782-49-2	10 mg/kg	100	----	70	130	----	----
		EG005T: Zinc	7440-66-6	50 mg/kg	104	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2648575)										
EP1210303-002	T02C01	EG035T: Mercury	7439-97-6	10 mg/kg	109	----	70	130	----	----
EG020T: Total Metals by ICP-MS (QCLot: 2648576)										
EP1210303-002	T02C01	EG020Y-T: Cadmium	7440-43-9	50 mg/kg	100	----	70	130	----	----
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2649069)										
EP1210303-001	T01C01	EP074: Benzene	71-43-2	2.5 mg/kg	92.6	----	70	130	----	----
		EP074: Toluene	108-88-3	2.5 mg/kg	82.1	----	70	130	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 2649069)										
EP1210303-001	T01C01	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	83.8	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	90.1	----	70	130	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 2649069)										
EP1210303-001	T01C01	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	83.9	----	70	130	----	----
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2649070)										
EP1210303-001	T01C01	EP080-SD: C6 - C9 Fraction	----	26 mg/kg	98.6	----	70	130	----	----
EP080-SD: BTEXN (QCLot: 2649070)										
EP1210303-001	T01C01	EP080-SD: Benzene	71-43-2	2.5 mg/kg	99.5	----	70	130	----	----
		EP080-SD: Toluene	108-88-3	2.5 mg/kg	81.4	----	70	130	----	----
		EP080-SD: Ethylbenzene	100-41-4	2.5 mg/kg	84.1	----	70	130	----	----
		EP080-SD: meta- & para-Xylene	108-38-3	2.5 mg/kg	82.7	----	70	130	----	----
		EP080-SD: ortho-Xylene	95-47-6	2.5 mg/kg	87.4	----	70	130	----	----
EK055: Ammonia as N (QCLot: 2650997)										
EP1210303-004	T04C01	EK055: Ammonia as N	7664-41-7	50 mg/kg	109	----	70	130	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 2651044)										
EP1210303-002	T02C01	EP075(SIM): Phenol	108-95-2	10 mg/kg	105	----	73.4	135	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	88.7	----	71.7	136	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	109	----	62.8	137	----	----
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	10 mg/kg	75.0	----	73.6	128	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	62.4	----	18.0	152	----	----



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2652216)										
EP1210303-001	T01C01	EP132B-SD: Naphthalene	91-20-3	25 µg/kg	82.7	----	70	130	----	----
		EP132B-SD: 2-Methylnaphthalene	91-57-6	25 µg/kg	101	----	70	130	----	----
		EP132B-SD: Acenaphthylene	208-96-8	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Acenaphthene	83-32-9	25 µg/kg	109	----	70	130	----	----
		EP132B-SD: Fluorene	86-73-7	25 µg/kg	123	----	70	130	----	----
		EP132B-SD: Phenanthrene	85-01-8	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Anthracene	120-12-7	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Fluoranthene	206-44-0	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Pyrene	129-00-0	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Benz(a)anthracene	56-55-3	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Chrysene	218-01-9	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Benzo(b)fluoranthene	205-99-2	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Benzo(k)fluoranthene	207-08-9	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Benzo(e)pyrene	192-97-2	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Benzo(a)pyrene	50-32-8	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Perylene	198-55-0	25 µg/kg	84.1	----	70	130	----	----
		EP132B-SD: Benzo(g,h,i)perylene	191-24-2	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Dibenz(a,h)anthracene	53-70-3	25 µg/kg	97.7	----	70	130	----	----
		EP132B-SD: Indeno(1.2.3.cd)pyrene	193-39-5	25 µg/kg	115	----	70	130	----	----
		EP132B-SD: Coronene	191-07-1	25 µg/kg	119	----	70	130	----	----
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2652217)										
EP1210303-001	T01C01	EP071-SD: C10 - C14 Fraction	----	19.75 mg/kg	71.6	----	70	130	----	----
		EP071-SD: C15 - C28 Fraction	----	87.25 mg/kg	96.2	----	70	130	----	----
		EP071-SD: C29 - C36 Fraction	----	60 mg/kg	107	----	70	130	----	----
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2652220)										
EP1210303-001	T01C01	EP130: Bromophos-ethyl	4824-78-6	50 µg/kg	67.9	----	36.9	142	----	----
		EP130: Carbophenothion	786-19-6	50 µg/kg	74.5	----	0.5	157	----	----
		EP130: Chlorfenvinphos (E)	18708-86-6	5 µg/kg	51.6	----	50.3	137	----	----



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2652220) - continued										
EP1210303-001	T01C01	EP130: Chlorfenvinphos (Z)	18708-87-7	50 µg/kg	61.6	----	55.9	152	----	----
		EP130: Chlorpyrifos	2921-88-2	50 µg/kg	66.9	----	49	140	----	----
		EP130: Chlorpyrifos-methyl	5598-13-0	50 µg/kg	69.2	----	28.1	142	----	----
		EP130: Demeton-S-methyl	919-86-8	50 µg/kg	37.9	----	36.6	172	----	----
		EP130: Diazinon	333-41-5	50 µg/kg	70.5	----	37.2	148	----	----
		EP130: Dichlorvos	62-73-7	50 µg/kg	39.9	----	32.7	153	----	----
		EP130: Dimethoate	60-51-5	50 µg/kg	43.8	----	33.2	150	----	----
		EP130: Ethion	563-12-2	50 µg/kg	62.6	----	44	146	----	----
		EP130: Fenamiphos	22224-92-6	50 µg/kg	49.5	----	3.08	162	----	----
		EP130: Fenthion	55-38-9	50 µg/kg	28.7	----	10.6	157	----	----
		EP130: Malathion	121-75-5	50 µg/kg	75.5	----	38.1	143	----	----
		EP130: Azinphos Methyl	86-50-0	50 µg/kg	44.2	----	8.13	159	----	----
		EP130: Monocrotophos	6923-22-4	50 µg/kg	59.8	----	19.7	176	----	----
		EP130: Parathion	56-38-2	50 µg/kg	67.5	----	39.2	145	----	----
		EP130: Parathion-methyl	298-00-0	50 µg/kg	75.1	----	23.5	152	----	----
		EP130: Pirimphos-ethyl	23505-41-1	50 µg/kg	56.4	----	47.1	141	----	----
EP130: Prothiofos	34643-46-4	50 µg/kg	55.1	----	36.1	148	----	----		
EP131A: Organochlorine Pesticides (QCLot: 2652221)										
EP1210303-001	T01C01	EP131A: Aldrin	309-00-2	5 µg/kg	39.4	----	31.7	140	----	----
		EP131A: alpha-BHC	319-84-6	5 µg/kg	79.7	----	24.5	150	----	----
		EP131A: beta-BHC	319-85-7	5 µg/kg	79.5	----	36.9	139	----	----
		EP131A: delta-BHC	319-86-8	5 µg/kg	72.5	----	38.2	137	----	----
		EP131A: 4.4'-DDD	72-54-8	5 µg/kg	58.6	----	42.5	141	----	----
		EP131A: 4.4'-DDE	72-55-9	5 µg/kg	41.1	----	34.8	140	----	----
		EP131A: 4.4'-DDT	50-29-3	5 µg/kg	65.5	----	38	143	----	----
		EP131A: Dieldrin	60-57-1	5 µg/kg	46.2	----	43.2	134	----	----
		EP131A: alpha-Endosulfan	959-98-8	5 µg/kg	62.2	----	23.7	139	----	----
		EP131A: beta-Endosulfan	33213-65-9	5 µg/kg	73.6	----	35.8	138	----	----
		EP131A: Endosulfan sulfate	1031-07-8	5 µg/kg	68.2	----	7.45	158	----	----
		EP131A: Endrin	72-20-8	5 µg/kg	91.3	----	21.6	162	----	----
		EP131A: Endrin aldehyde	7421-93-4	5 µg/kg	58.4	----	19.3	131	----	----
		EP131A: Endrin ketone	53494-70-5	5 µg/kg	55.6	----	17.9	141	----	----
		EP131A: Heptachlor	76-44-8	5 µg/kg	# Not Determined	----	31	153	----	----
		EP131A: Heptachlor epoxide	1024-57-3	5 µg/kg	69.8	----	34.3	138	----	----
		EP131A: Hexachlorobenzene (HCB)	118-74-1	5 µg/kg	67.7	----	18.6	146	----	----
		EP131A: gamma-BHC	58-89-9	5 µg/kg	# Not Determined	----	30.7	145	----	----
		EP131A: Methoxychlor	72-43-5	5 µg/kg	73.9	----	15	157	----	----
		EP131A: cis-Chlordane	5103-71-9	5 µg/kg	63.4	----	22.3	145	----	----

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 Work Order : EP1210303 Amendment 1
 Client : RPS ENVIRONMENT PTY LTD
 Project : I12147 Burswood Stadium



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EP131A: Organochlorine Pesticides (QCLot: 2652221) - continued										
EP1210303-001	T01C01	EP131A: trans-Chlordane	5103-74-2	5 µg/kg	62.9	----	42.4	139	----	----
EP131B: Polychlorinated Biphenyls (as Aroclors) (QCLot: 2652222)										
EP1210303-001	T01C01	EP131B: Aroclor 1254	11097-69-1	50 µg/kg	68.8	----	61.3	121	----	----

Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: EP1210303	Page	: 1 of 16
Amendment	: 1		
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: MR ALAN FOLEY	Contact	: Scott James
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: alan.foley@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: I12147 Burswood Stadium	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Burswood Stadium		
C-O-C number	: ----	Date Samples Received	: 10-DEC-2012
Sampler	: JA and AJ	Issue Date	: 01-MAY-2013
Order number	: ----		
Quote number	: EP/689/12 V4	No. of samples received	: 12
		No. of samples analysed	: 12

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

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)								
T01C01, T03C01, T05C01, T07C01, T09C01, T13C01,	T02C01, T04C01, T06C01, T08C01, T11C01, T21C01	10-DEC-2012	----	----	----	12-DEC-2012	24-DEC-2012	✓
EA150: Particle Sizing								
Snap Lock Bag (EA150H)								
T01C01, T07C01,	T05C01, T13C01	10-DEC-2012	---	08-JUN-2013	----	18-DEC-2012	08-JUN-2013	✓
EA150: Soil Classification based on Particle Size								
Snap Lock Bag (EA150H)								
T01C01, T07C01,	T05C01, T13C01	10-DEC-2012	---	08-JUN-2013	----	18-DEC-2012	08-JUN-2013	✓
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Snap Lock Bag (EA200)								
T01C01, T03C01, T05C01, T07C01, T09C01, T13C01,	T02C01, T04C01, T06C01, T08C01, T11C01, T21C01	10-DEC-2012	---	08-JUN-2013	----	19-DEC-2012	17-JUN-2013	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
T01C01, T03C01, T05C01, T07C01, T09C01, T13C01,	T02C01, T04C01, T06C01, T08C01, T11C01, T21C01	10-DEC-2012	14-DEC-2012	08-JUN-2013	✓	17-DEC-2012	08-JUN-2013	✓



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)							
T01C01, T02C01, T03C01, T04C01, T05C01, T06C01, T07C01, T08C01, T09C01, T11C01, T13C01, T21C01	10-DEC-2012	14-DEC-2012	08-JUN-2013	✓	20-DEC-2012	08-JUN-2013	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
T01C01, T02C01, T03C01, T04C01, T05C01, T06C01, T07C01, T08C01, T09C01, T11C01, T13C01, T21C01	10-DEC-2012	14-DEC-2012	07-JAN-2013	✓	17-DEC-2012	07-JAN-2013	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF)							
T01C01, T02C01, T03C01, T04C01, T05C01, T06C01, T07C01, T08C01, T09C01, T11C01, T13C01, T21C01	10-DEC-2012	19-DEC-2012	17-DEC-2012	*	19-DEC-2012	02-JAN-2013	✓
EK055: Ammonia as N							
Soil Glass Jar - Unpreserved (EK055)							
T01C01, T04C01, T07C01	10-DEC-2012	----	----	----	18-DEC-2012	08-JUN-2013	✓
EK057G: Nitrite as N by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK057G)							
T01C01, T04C01, T07C01	10-DEC-2012	13-DEC-2012	08-JUN-2013	✓	13-DEC-2012	08-JUN-2013	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK059G)							
T01C01, T04C01, T07C01	10-DEC-2012	13-DEC-2012	08-JUN-2013	✓	13-DEC-2012	08-JUN-2013	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Soil Glass Jar - Unpreserved (EK061G)							
T01C01, T04C01, T07C01	10-DEC-2012	13-DEC-2012	08-JUN-2013	✓	17-DEC-2012	08-JUN-2013	✓



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) T01C01, T07C01	T04C01,	10-DEC-2012	13-DEC-2012	08-JUN-2013	✓	17-DEC-2012	08-JUN-2013	✓
EK071G: Reactive Phosphorus as P by discrete analyser								
Soil Glass Jar - Unpreserved (EK071G) T01C01, T07C01	T04C01,	10-DEC-2012	13-DEC-2012	08-JUN-2013	✓	13-DEC-2012	08-JUN-2013	✓
EP003: Total Organic Carbon (TOC) in Soil								
Soil Glass Jar - Unpreserved (EP003) T01C01, T03C01, T05C01, T07C01, T09C01, T13C01,	T02C01, T04C01, T06C01, T08C01, T11C01, T21C01	10-DEC-2012	13-DEC-2012	17-DEC-2012	✓	13-DEC-2012	10-JAN-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
Soil Glass Jar - Unpreserved (EP071-SD) T01C01, T03C01, T05C01, T07C01, T09C01, T13C01,	T02C01, T04C01, T06C01, T08C01, T11C01, T21C01	10-DEC-2012	18-DEC-2012	24-DEC-2012	✓	21-DEC-2012	27-JAN-2013	✓
EP074D: Fumigants								
Soil Glass Jar - Unpreserved (EP074) T01C01, T04C01, T09C01	T02C01, T07C01,	10-DEC-2012	14-DEC-2012	24-DEC-2012	✓	20-DEC-2012	24-DEC-2012	✓
EP074E: Halogenated Aliphatic Compounds								
Soil Glass Jar - Unpreserved (EP074) T01C01, T04C01, T09C01	T02C01, T07C01,	10-DEC-2012	14-DEC-2012	24-DEC-2012	✓	20-DEC-2012	24-DEC-2012	✓
EP074F: Halogenated Aromatic Compounds								
Soil Glass Jar - Unpreserved (EP074) T01C01, T04C01, T09C01	T02C01, T07C01,	10-DEC-2012	14-DEC-2012	24-DEC-2012	✓	20-DEC-2012	24-DEC-2012	✓



Matrix: **SOIL**

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

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP074A: Monocyclic Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074) T01C01, T04C01, T09C01	T02C01, T07C01,	10-DEC-2012	14-DEC-2012	24-DEC-2012	✓	20-DEC-2012	24-DEC-2012	✓
EP074H: Naphthalene								
Soil Glass Jar - Unpreserved (EP074) T01C01, T04C01, T09C01	T02C01, T07C01,	10-DEC-2012	14-DEC-2012	24-DEC-2012	✓	20-DEC-2012	24-DEC-2012	✓
EP074B: Oxygenated Compounds								
Soil Glass Jar - Unpreserved (EP074) T01C01, T04C01, T09C01	T02C01, T07C01,	10-DEC-2012	14-DEC-2012	24-DEC-2012	✓	20-DEC-2012	24-DEC-2012	✓
EP074C: Sulfonated Compounds								
Soil Glass Jar - Unpreserved (EP074) T01C01, T04C01, T09C01	T02C01, T07C01,	10-DEC-2012	14-DEC-2012	24-DEC-2012	✓	20-DEC-2012	24-DEC-2012	✓
EP074G: Trihalomethanes								
Soil Glass Jar - Unpreserved (EP074) T01C01, T04C01, T09C01	T02C01, T07C01,	10-DEC-2012	14-DEC-2012	24-DEC-2012	✓	20-DEC-2012	24-DEC-2012	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) T01C01, T03C01, T05C01, T07C01, T09C01, T13C01,	T02C01, T04C01, T06C01, T08C01, T11C01, T21C01	10-DEC-2012	17-DEC-2012	24-DEC-2012	✓	18-DEC-2012	27-JAN-2013	✓
EP080-SD: BTEXN								
Soil Glass Jar - Unpreserved (EP080-SD) T01C01, T03C01, T05C01, T07C01, T09C01, T13C01,	T02C01, T04C01, T06C01, T08C01, T11C01, T21C01	10-DEC-2012	14-DEC-2012	24-DEC-2012	✓	20-DEC-2012	24-DEC-2012	✓



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-SD / EP071-SD: Total Recoverable Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080-SD)								
T01C01, T03C01, T05C01, T07C01, T09C01, T13C01,	T02C01, T04C01, T06C01, T08C01, T11C01, T21C01	10-DEC-2012	14-DEC-2012	24-DEC-2012	✓	20-DEC-2012	24-DEC-2012	✓
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Soil Glass Jar - Unpreserved (EP130)								
T01C01, T03C01, T05C01, T07C01, T09C01, T13C01,	T02C01, T04C01, T06C01, T08C01, T11C01, T21C01	10-DEC-2012	18-DEC-2012	24-DEC-2012	✓	22-DEC-2012	27-JAN-2013	✓
EP131A: Organochlorine Pesticides								
Soil Glass Jar - Unpreserved (EP131A)								
T01C01, T03C01, T05C01, T07C01, T09C01, T13C01,	T02C01, T04C01, T06C01, T08C01, T11C01, T21C01	10-DEC-2012	18-DEC-2012	24-DEC-2012	✓	22-DEC-2012	27-JAN-2013	✓
EP131B: Polychlorinated Biphenyls (as Aroclors)								
Soil Glass Jar - Unpreserved (EP131B)								
T01C01, T03C01, T05C01, T07C01, T09C01, T13C01,	T02C01, T04C01, T06C01, T08C01, T11C01, T21C01	10-DEC-2012	18-DEC-2012	24-DEC-2012	✓	22-DEC-2012	27-JAN-2013	✓
EP132B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP132B-SD)								
T01C01, T03C01, T05C01, T07C01, T09C01, T13C01,	T02C01, T04C01, T06C01, T08C01, T11C01, T21C01	10-DEC-2012	18-DEC-2012	24-DEC-2012	✓	22-DEC-2012	27-JAN-2013	✓

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 Work Order : EP1210303 Amendment 1
 Client : RPS ENVIRONMENT PTY LTD
 Project : I12147 Burswood Stadium



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	
EP201: Carbamate Pesticides by LCMS								
Soil Glass Jar - Unpreserved (EP201) T01C01, T04C01, T09C01	T02C01, T07C01	10-DEC-2012	14-DEC-2012	24-DEC-2012	✓	14-DEC-2012	23-JAN-2013	✓
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
Soil Glass Jar - Unpreserved (EP202) T01C01, T04C01, T09C01	T02C01, T07C01	10-DEC-2012	14-DEC-2012	24-DEC-2012	✓	14-DEC-2012	23-JAN-2013	✓



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(where) 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	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Buchi Ammonia	EK055	1	5	20.0	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	2	13	15.4	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	2	12	16.7	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	33.3	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	33.3	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organochlorine Pesticides (Ultra-trace)	EP131A	2	14	14.3	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organophosphorus Pesticides (Ultra-trace)	EP130	2	14	14.3	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	12	16.7	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAHs in Sediments by GCMS(SIM)	EP132B-SD	2	14	14.3	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	2	14	14.3	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	2	13	15.4	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-Soluble By Discrete Analyser	EK071G	1	3	33.3	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TKN as N By Discrete Analyser	EK061G	1	6	16.7	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	2	12	16.7	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite Y	EG020Y-T	2	12	16.7	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	2	12	16.7	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosporus By Discrete Analyser	EK067G	1	6	16.7	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071-SD	2	14	14.3	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX in Sediments	EP080-SD	2	12	16.7	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Buchi Ammonia	EK055	1	5	20.0	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	13	7.7	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	33.3	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	33.3	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organochlorine Pesticides (Ultra-trace)	EP131A	1	14	7.1	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organophosphorus Pesticides (Ultra-trace)	EP130	1	14	7.1	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	12	8.3	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAHs in Sediments by GCMS(SIM)	EP132B-SD	1	14	7.1	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	1	14	7.1	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	13	7.7	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-Soluble By Discrete Analyser	EK071G	1	3	33.3	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Control Samples (LCS) - Continued							
TKN as N By Discrete Analyser	EK061G	2	6	33.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite Y	EG020Y-T	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosporus By Discrete Analyser	EK067G	2	6	33.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071-SD	1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX in Sediments	EP080-SD	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Buchi Ammonia	EK055	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	13	7.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	33.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	33.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organochlorine Pesticides (Ultra-trace)	EP131A	1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organophosphorus Pesticides (Ultra-trace)	EP130	1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAHs in Sediments by GCMS(SIM)	EP132B-SD	1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	13	7.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-Soluble By Discrete Analyser	EK071G	1	3	33.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TKN as N By Discrete Analyser	EK061G	1	6	16.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite Y	EG020Y-T	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosporus By Discrete Analyser	EK067G	1	6	16.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071-SD	1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX in Sediments	EP080-SD	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Buchi Ammonia	EK055	1	5	20.0	5.0	✓	ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	13	7.7	5.0	✓	ALS QCS3 requirement
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	33.3	5.0	✓	ALS QCS3 requirement
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	33.3	5.0	✓	ALS QCS3 requirement
Organochlorine Pesticides (Ultra-trace)	EP131A	1	14	7.1	5.0	✓	ALS QCS3 requirement



Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Matrix Spikes (MS) - Continued							
Organophosphorus Pesticides (Ultra-trace)	EP130	1	14	7.1	5.0	✔	ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	12	8.3	5.0	✔	ALS QCS3 requirement
PAHs in Sediments by GCMS(SIM)	EP132B-SD	1	14	7.1	5.0	✔	ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	1	14	7.1	5.0	✔	ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	13	7.7	5.0	✔	ALS QCS3 requirement
Reactive Phosphorus as P-Soluble By Discrete Analyser	EK071G	1	3	33.3	5.0	✔	ALS QCS3 requirement
TKN as N By Discrete Analyser	EK061G	1	6	16.7	5.0	✔	ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	1	12	8.3	5.0	✔	ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	ALS QCS3 requirement
Total Metals by ICP-MS - Suite Y	EG020Y-T	1	12	8.3	5.0	✔	ALS QCS3 requirement
Total Phosphorus By Discrete Analyser	EK067G	1	6	16.7	5.0	✔	ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071-SD	1	14	7.1	5.0	✔	ALS QCS3 requirement
TPH Volatiles/BTEX in Sediments	EP080-SD	1	12	8.3	5.0	✔	ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✔	ALS QCS3 requirement



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	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2010 Draft) 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
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200O	SOIL	Estimation of Asbestos content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) 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 (1999) Schedule B(3)
Total Metals by ICP-MS - Suite Y	EG020Y-T	SOIL	(APHA 21st ed., 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	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(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 SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	APHA 4500-CN-O. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Buchi Ammonia	EK055	SOIL	APHA 21st ed., 4500 NH ₃ +B&G, H Samples are steam distilled (Buchi) prior to analysis and quantified using titration, FIA or Discrete Analyser.
Nitrite as N - Soluble by Discrete Analyser	EK057G	SOIL	APHA 21st ed., 4500 NO ₃ - B. Nitrite in a water extract is determined by direct colourimetry by Discrete Analyser.
Nitrate as N - Soluble by Discrete Analyser	EK058G	SOIL	APHA 21st ed., 4500 NO ₃ --F. Nitrate in the 1:5 soil:water extract 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.
Nitrite and Nitrate as N (NO _x)- Soluble by Discrete Analyser	EK059G	SOIL	APHA 21st ed., 4500 NO ₃ - F. Combined oxidised Nitrogen (NO ₂ +NO ₃) in a water extract is determined by Chemical Reduction, and direct colourimetry by Discrete Analyser.
TKN as N By Discrete Analyser	EK061G	SOIL	APHA 21st ed., 4500-Norg-D Soil samples are digested using Kjeldahl digestion followed by determination by Discrete Analyser.



Analytical Methods	Method	Matrix	Method Descriptions
Total Nitrogen as N (TKN + NOx) By Discrete Analyser	EK062G	SOIL	APHA 21st ed., 4500 Norg/NO3- Total Nitrogen is determined as the sum of TKN and Oxidised Nitrogen, each determined seperately as N.
Total Phosporus By Discrete Analyser	EK067G	SOIL	APHA 21st ed., 4500 P-B&F This procedure involves sulfuric acid digestion and quantification using Discrete Analyser.
Reactive Phosphorus as P-Soluble By Discrete Analyser	EK071G	SOIL	APHA 21st ed., 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 (1999) Schedule B(3) (Appdx. 2
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO2) is automatically measured by infra-red detector.
TPH - Semivolatle Fraction	EP071-SD	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Method 504)
Volatile Organic Compounds	EP074	SOIL	(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. This method is compliant with NEPM (1999) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) 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 (1999) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX in Sediments	EP080-SD	SOIL	(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. This method is compliant with NEPM (1999) Schedule B(3) (Method 501)
Organophosphorus Pesticides (Ultra-trace)	EP130	SOIL	USEPA Method 3640 (GPC cleanup), 8141 (GC/FPD - Capillary Column) This technique is compliant with NEPM (1999) Schedule B(3) (Method 505)
Organochlorine Pesticides (Ultra-trace)	EP131A	SOIL	USEPA Method 3640 (GPC cleanup),3620 (Florisil), 8081/8082 (GC/uECD/uECD) This technique is compliant with NEPM (1999) Schedule B(3) (Method 504)
PCB's (Ultra-trace)	EP131B	SOIL	USEPA Method 3640 (GPC cleanup),3620 (Florisil), 8081/8082 (GC/uECD/uECD) This technique is compliant with NEPM (1999) Schedule B(3) (Method 504)
PAHs in Sediments by GCMS(SIM)	EP132B-SD	SOIL	8270 GCMS Capillary column, SIM mode using large volume programmed temperature vaporisation injection.
Carbamate Pesticides by LCMS	EP201	SOIL	USEPA Method 8318, In-house LCMS (ES in positive mode). Residues of carbamates are extracted from soil samples using acetonitrile. The extract is evaporated to near dryness and the residues are dissolved in HPLC mobile phase prior to instrumental analysis.
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	SOIL	In-House, LCMS (Electrospray in negative mode). Residues of acid herbicides are extracted from soil samples under the alkaline condition. An aliquot of the alkaline aqueous phase is taken and acidified before a SPE cleanup. After eluting off from the SPE cartridge, residues of acid herbicides are dissolved in HPLC mobile phase prior to instrument analysis.
Faecal Coliforms (Solid)	FCF-SOL	SOIL	Faecal Coliform analysis of solid matrices conducted by Subcontracting Laboratory
Miscellaneous Subcontracted Analysis	MIS-SOL	SOIL	Miscellaneous Subcontracted Analysis conducted by Subcontracting Laboratory
Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In-house, APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. 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 (1999) Schedule B(3) (Method 202)
Extraction for Carbamates in Soils	EP201-PR	SOIL	USEPA Method 8318
Extraction for Phenoxy Acid Herbicides in Soils.	EP202-PR	SOIL	In-House: Alkaline extract followed by SPE clean up of acidified portion of the sample extract.
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(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/ Sample Cleanup	ORG17A-UTP	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na ₂ SO ₄ and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. Samples are extracted, concentrated (by KD) and exchanged into an appropriate solvent for GPC and florisil cleanup as required.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Tumbler Extraction of Solids for LVI (Non-concentrating)	ORG17D	SOIL	In house: 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 50mL 1:1 DCM/Acetone by end over end tumbling. An aliquot is concentrated by nitrogen blowdown to a reduced volume for analysis if required.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

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							
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	T01C01	Perylene	198-55-0	112 %	0-20%	RPD exceeds LOR based limits
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-011	T13C01	Sum of PAHs	----	31.0 %	0-20%	RPD exceeds LOR based limits
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	T01C01	Sum of PAHs	----	28.2 %	0-20%	RPD exceeds LOR based limits
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EP1210303-002	T02C01	Aluminium	7429-90-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG005T: Total Metals by ICP-AES	EP1210303-002	T02C01	Iron	7439-89-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EK067G: Total Phosphorus as P by Discrete Analyser	EP1210298-004	Anonymous	Total Phosphorus as P	----	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP131A: Organochlorine Pesticides	EP1210303-001	T01C01	Heptachlor	76-44-8	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP131A: Organochlorine Pesticides	EP1210303-001	T01C01	gamma-BHC	58-89-9	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	T01C01	Acenaphthylene	208-96-8	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	T01C01	Phenanthrene	85-01-8	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	T01C01	Anthracene	120-12-7	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	T01C01	Fluoranthene	206-44-0	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	T01C01	Pyrene	129-00-0	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	T01C01	Benz(a)anthracene	56-55-3	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	T01C01	Chrysene	218-01-9	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	T01C01	Benzo(b)fluoranthene	205-99-2	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.



Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries - Continued							
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	T01C01	Benzo(k)fluoranthene	207-08-9	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	T01C01	Benzo(e)pyrene	192-97-2	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	T01C01	Benzo(a)pyrene	50-32-8	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	T01C01	Benzo(g,h,i)perylene	191-24-2	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Laboratory Control outliers occur.

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP080-SD: TPH(V)/BTEX Surrogates	EP1210303-011	T13C01	Toluene-D8	2037-26-5	71.8 %	74-134 %	Recovery less than lower data quality objective
EP080-SD: TPH(V)/BTEX Surrogates	EP1210303-005	T05C01	4-Bromofluorobenzene	460-00-4	72.2 %	73-137 %	Recovery less than lower data quality objective
EP080-SD: TPH(V)/BTEX Surrogates	EP1210303-011	T13C01	4-Bromofluorobenzene	460-00-4	71.4 %	73-137 %	Recovery less than lower data quality objective
EP132T: Base/Neutral Extractable Surrogates	EP1210303-002	T02C01	2-Fluorobiphenyl	321-60-8	119 %	30-115 %	Recovery greater than upper data quality objective
EP132T: Base/Neutral Extractable Surrogates	EP1210303-004	T04C01	2-Fluorobiphenyl	321-60-8	118 %	30-115 %	Recovery greater than upper data quality objective
EP132T: Base/Neutral Extractable Surrogates	EP1210303-009	T09C01	2-Fluorobiphenyl	321-60-8	118 %	30-115 %	Recovery greater than upper data quality objective

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

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
EK026SF: Total CN by Segmented Flow Analyser						



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
EK026SF: Total CN by Segmented Flow Analyser - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
T01C01, T02C01, T03C01, T04C01, T05C01, T06C01, T07C01, T08C01, T09C01, T11C01, T13C01, T21C01	19-DEC-2012	17-DEC-2012	2	----	----	----

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

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

Environmental Division

CERTIFICATE OF ANALYSIS

<p>Work Order : EP1210362</p> <p>Client : RPS ENVIRONMENT PTY LTD</p> <p>Contact : JOSH ABBOTT</p> <p>Address : 38 STATION STREET SUBIACO WA, AUSTRALIA 6008</p> <p>E-mail : josh.abbott@rpsgroup.com.au</p> <p>Telephone : +61 08 93824744</p> <p>Facsimile : +61 08 93821177</p> <p>Project : I12147</p> <p>Order number : ----</p> <p>C-O-C number : ----</p> <p>Sampler : JA AJ</p> <p>Site : Burswood Stadium</p> <p>Quote number : EP/689/12 V4</p>	<p>Page : 1 of 12</p> <p>Laboratory : Environmental Division Perth</p> <p>Contact : Scott James</p> <p>Address : 10 Hod Way Malaga WA Australia 6090</p> <p>E-mail : perth.enviro.services@alsglobal.com</p> <p>Telephone : +61-8-9209 7655</p> <p>Facsimile : +61-8-9209 7600</p> <p>QC Level : NEPM 1999 Schedule B(3) and ALS QCS3 requirement</p> <p>Date Samples Received : 12-DEC-2012</p> <p>Issue Date : 24-DEC-2012</p> <p>No. of samples received : 2</p> <p>No. of samples analysed : 2</p>
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Agnes Szilagyi	Senior Organic Chemist	Perth Organics
Canhuang Ke	Metals Instrument Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Scott James	Laboratory Manager	Perth Inorganics



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.

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

- **EG035T: Poor mercury spike recovery due to sample matrix interference. Confirmed by re-extraction and re-analysis.**
-



Analytical Results

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

Client sample ID

Client sampling date / time

				TZR2	TZB2	----	----	----
				12-DEC-2012 11:00	12-DEC-2012 11:00	----	----	----
				EP1210362-001	EP1210362-002	----	----	----
Compound	CAS Number	LOR	Unit					
ED093F: Dissolved Major Cations								
Magnesium	7439-95-4	1	mg/L	<1	<1	----	----	----
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	----	----	----
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	0.001	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	----	----	----
Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	----	----	----
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	0.002	----	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	----	----	----
Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	----	----	----
Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	----	----	----
Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----
EK025SF: Free CN by Segmented Flow Analyser								
Free Cyanide	----	0.004	mg/L	<0.004	<0.004	----	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	0.004	mg/L	<0.004	<0.004	----	----	----
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser								
Weak Acid Dissociable Cyanide	----	0.004	mg/L	<0.004	<0.004	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.01	0.01	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	----	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	<0.01	<0.01	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TZR2	TZB2	---	---	---
				12-DEC-2012 11:00	12-DEC-2012 11:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210362-001	EP1210362-002	---	---	---
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser - Continued								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	<0.1	---	---	---
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	<0.1	0.1	---	---	---
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	---	---	---
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	---	---	---
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	---	---	---
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	---	---	---
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	---	---	---
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	---	---	---
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	---	---	---
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	---	---	---
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	---	---	---
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	---	---	---
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	---	---	---
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	---	---	---
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	---	---	---
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	---	---	---
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	---	---	---
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	---	---	---
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	---	---	---
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	---	---	---
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	---	---	---
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	---	---	---
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	---	---	---
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	---	---	---
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	---	---	---
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	---	---	---
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	---	---	---
^ Sum of DDD + DDE + DDT	----	0.5	µg/L	<0.5	<0.5	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TZR2	TZB2	---	---	---
				12-DEC-2012 11:00	12-DEC-2012 11:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210362-001	EP1210362-002	---	---	---
EP068A: Organochlorine Pesticides (OC) - Continued								
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	---	---	---
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	---	---	---
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	---	---	---
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	---	---	---
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	---	---	---
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	---	---	---
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	---	---	---
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	---	---	---
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	---	---	---
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	---	---	---
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	---	---	---
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	---	---	---
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	---	---	---
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	---	---	---
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	---	---	---
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	---	---	---
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	---	---	---
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	---	---	---
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	---	---	---
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	---	---	---
EP074A: Monocyclic Aromatic Hydrocarbons								
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	---	---	---
Styrene	100-42-5	5	µg/L	<5	<5	---	---	---
ortho-Xylene	95-47-6	2	µg/L	<2	<2	---	---	---
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	---	---	---
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	---	---	---
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	---	---	---
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	---	---	---
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TZR2	TZB2	---	---	---
				12-DEC-2012 11:00	12-DEC-2012 11:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210362-001	EP1210362-002	---	---	---
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	---	---	---
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	---	---	---
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	---	---	---
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	---	---	---
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	---	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	---	---	---
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	---	---	---
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	---	---	---
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	---	---	---
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	---	---	---
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	---	---	---
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	---	---	---
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	---	---	---
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	---	---	---
Chloromethane	74-87-3	50	µg/L	<50	<50	---	---	---
Vinyl chloride	75-01-4	50	µg/L	<50	<50	---	---	---
Bromomethane	74-83-9	50	µg/L	<50	<50	---	---	---
Chloroethane	75-00-3	50	µg/L	<50	<50	---	---	---
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	---	---	---
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	---	---	---
Iodomethane	74-88-4	5	µg/L	<5	<5	---	---	---
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	---	---	---
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	---	---	---
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	---	---	---
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	---	---	---
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	---	---	---
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	---	---	---
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	---	---	---
Trichloroethene	79-01-6	5	µg/L	<5	<5	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TZR2	TZB2	---	---	---
				12-DEC-2012 11:00	12-DEC-2012 11:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210362-001	EP1210362-002	---	---	---
EP074E: Halogenated Aliphatic Compounds - Continued								
Dibromomethane	74-95-3	5	µg/L	<5	<5	---	---	---
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	---	---	---
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	---	---	---
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	---	---	---
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	---	---	---
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	---	---	---
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	---	---	---
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	---	---	---
Pentachloroethane	76-01-7	5	µg/L	<5	<5	---	---	---
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	---	---	---
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	---	---	---
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	---	---	---
Bromobenzene	108-86-1	5	µg/L	<5	<5	---	---	---
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	---	---	---
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	---	---	---
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	---	---	---
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	---	---	---
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	---	---	---
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	---	---	---
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	---	---	---
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	---	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	---	---	---
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	---	---	---
Bromoform	75-25-2	5	µg/L	<5	<5	---	---	---
EP074H: Naphthalene								
Naphthalene	91-20-3	7	µg/L	<7	<7	---	---	---
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TZR2	TZB2	---	---	---
				12-DEC-2012 11:00	12-DEC-2012 11:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210362-001	EP1210362-002	---	---	---
EP075(SIM)A: Phenolic Compounds - Continued								
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	---	---	---
4-Chloro-3-Methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	---	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	---	---	---
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	---	---	---
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	---	---	---
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	---	---	---
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	---	---	---
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	---	---	---
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	---	---	---
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	---	---	---
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	---	---	---
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	---	---	---
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	---	---	---
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	---	---	---
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	---	---	---
^ Benzo(a)pyrene TEQ (WHO)	----	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	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TZR2	TZB2	---	---	---
				12-DEC-2012 11:00	12-DEC-2012 11:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210362-001	EP1210362-002	---	---	---
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	---	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	20	µg/L	<20	<20	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	----	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	---	---	---
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	---	---	---
EP201: Carbamate Pesticides by LCMS								
Oxamyl	23135-22-0	0.2	µg/L	<0.2	<0.2	---	---	---
Methomyl	16752-77-5	0.2	µg/L	<0.2	<0.2	---	---	---
3-Hydroxy Carbofuran	16655-82-6	0.2	µg/L	<0.2	<0.2	---	---	---
Aldicarb	116-06-3	0.2	µg/L	<0.2	<0.2	---	---	---
Bendiocarb	22781-23-3	0.2	µg/L	<0.2	<0.2	---	---	---
Thiodicarb	59669-26-0	0.2	µg/L	<0.2	<0.2	---	---	---
Carbofuran	1563-66-2	0.2	µg/L	<0.2	<0.2	---	---	---
Carbaryl	63-25-2	0.2	µg/L	<0.2	<0.2	---	---	---
Methiocarb	2032-65-7	0.2	µg/L	<0.2	<0.2	---	---	---
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	---	---	---
2,4-DB	94-82-6	10	µg/L	<10	<10	---	---	---
Dicamba	1918-00-9	10	µg/L	<10	<10	---	---	---
Mecoprop	93-65-2	10	µg/L	<10	<10	---	---	---
MCPA	94-74-6	10	µg/L	<10	<10	---	---	---



Analytical Results

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

Client sample ID

Client sampling date / time

				TZR2	TZB2	---	---	---
				12-DEC-2012 11:00	12-DEC-2012 11:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210362-001	EP1210362-002	---	---	---
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued								
2.4-DP	120-36-5	10	µg/L	<10	<10	---	---	---
2.4-D	94-75-7	10	µg/L	<10	<10	---	---	---
Triclopyr	55335-06-3	10	µg/L	<10	<10	---	---	---
2.4.5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	---	---	---
2.4.5-T	93-76-5	10	µg/L	<10	<10	---	---	---
MCPB	94-81-5	10	µg/L	<10	<10	---	---	---
Picloram	1918-02-1	10	µg/L	<10	<10	---	---	---
Clopyralid	1702-17-6	10	µg/L	<10	<10	---	---	---
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	---	---	---
2.6-D	575-90-6	10	µg/L	<10	<10	---	---	---
2.4.6-T	575-89-3	10	µg/L	<10	<10	---	---	---
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	79.9	73.7	---	---	---
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	72.8	70.4	---	---	---
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	77.4	72.4	---	---	---
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	102	104	---	---	---
Toluene-D8	2037-26-5	0.1	%	101	98.6	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	94.0	93.0	---	---	---
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	31.6	27.7	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	67.6	59.3	---	---	---
2.4.6-Tribromophenol	118-79-6	0.1	%	65.5	61.1	---	---	---
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	51.7	47.9	---	---	---
Anthracene-d10	1719-06-8	0.1	%	76.6	69.5	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	72.8	69.9	---	---	---
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	120	120	---	---	---
Toluene-D8	2037-26-5	0.1	%	96.0	94.2	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	89.9	89.2	---	---	---



Analytical Results

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

Client sample ID

				TZR2	TZB2	----	----	----
				12-DEC-2012 11:00	12-DEC-2012 11:00	----	----	----
				EP1210362-001	EP1210362-002	----	----	----
EP201S: Carbamate Surrogate								
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	0.1	%	107	98.6	----	----	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	73.5	73.0	----	----	----

Client sampling date / time

Compound CAS Number LOR Unit



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	27.4	136.2
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50.0	146.3
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	26.8	153.4
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	62.3	133.9
Toluene-D8	2037-26-5	74.5	124.3
4-Bromofluorobenzene	460-00-4	63.9	118.5
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	67.2
2-Chlorophenol-D4	93951-73-6	29.4	119.5
2,4,6-Tribromophenol	118-79-6	10.0	130.8
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	33.8	130.7
Anthracene-d10	1719-06-8	42.7	126.5
4-Terphenyl-d14	1718-51-0	40.5	142.4
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	60.5	141.2
Toluene-D8	2037-26-5	73.4	126
4-Bromofluorobenzene	460-00-4	59.6	125.3
EP201S: Carbamate Surrogate			
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	65	147
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2,4-Dichlorophenyl Acetic Acid	19719-28-9	64	140

QUALITY CONTROL REPORT

Work Order	: EP1210362	Page	: 1 of 18
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: JOSH ABBOTT	Contact	: Scott James
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: josh.abbott@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: I12147	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Burswood Stadium	Date Samples Received	: 12-DEC-2012
C-O-C number	: ----	Issue Date	: 24-DEC-2012
Sampler	: JA AJ	No. of samples received	: 2
Order number	: ----	No. of samples analysed	: 2
Quote number	: EP/689/12 V4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Agnes Szilagyi	Senior Organic Chemist	Perth Organics
Canhuang Ke	Metals Instrument Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Scott James	Laboratory Manager	Perth Inorganics



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.

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 (%)
ED093F: Dissolved Major Cations (QC Lot: 2646437)									
EP1210362-001	TZR2	ED093F: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 2646949)									
EP1210362-001	TZR2	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
EP1210380-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.008	0.007	0.0	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.073	0.075	2.8	0% - 50%
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.03	0.03	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	0.06	<0.05	0.0	No Limit
EG020A-T: Iron	7439-89-6	0.05	mg/L	0.88	0.87	0.0	0% - 50%		
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2646966)									
EP1210371-007	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK025SF: Free CN by Segmented Flow Analyser (QC Lot: 2651522)									
EP1210258-001	Anonymous	EK025SF: Free Cyanide	----	0.004	mg/L	3.06	2.94	3.9	0% - 20%
EP1210377-001	Anonymous	EK025SF: Free Cyanide	----	0.004	mg/L	<0.004	<0.004	0.0	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 (%)	
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 2651523)										
EP1210258-001	Anonymous	EK026SF: Total Cyanide	57-12-5	0.004	mg/L	26.6	24.2	9.8	0% - 20%	
EP1210400-001	Anonymous	EK026SF: Total Cyanide	57-12-5	0.004	mg/L	1.42	1.41	0.7	0% - 20%	
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QC Lot: 2651524)										
EP1210258-001	Anonymous	EK028SF: Weak Acid Dissociable Cyanide	----	0.004	mg/L	25.1	23.5	6.5	0% - 20%	
EP1210400-001	Anonymous	EK028SF: Weak Acid Dissociable Cyanide	----	0.004	mg/L	0.576	0.560	2.8	0% - 20%	
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 2646458)										
EP1210361-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.04	0.04	0.0	No Limit	
EP1210362-001	TZR2	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.04	0.04	0.0	No Limit	
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 2646438)										
EP1210362-001	TZR2	EK057G: Nitrite as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
EP1210375-003	Anonymous	EK057G: Nitrite as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 2646457)										
EP1210361-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	1.79	1.80	0.7	0% - 20%	
EP1210362-001	TZR2	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.01	0.01	0.0	No Limit	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 2646198)										
EP1210361-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.8	0.8	0.0	No Limit	
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 2646199)										
EP1210361-003	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.07	0.08	0.0	No Limit	
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 2646439)										
EP1210362-001	TZR2	EK071G: Reactive Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
EP1210375-003	Anonymous	EK071G: Reactive Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit	
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2649379)										
EP1210362-001	TZR2	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit			
EP074B: Oxygenated Compounds (QC Lot: 2649379)										
EP1210362-001	TZR2	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	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 (%)
EP074B: Oxygenated Compounds (QC Lot: 2649379) - continued									
EP1210362-001	TZR2	EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 2649379)									
EP1210362-001	TZR2	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 2649379)									
EP1210362-001	TZR2	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2649379)									
EP1210362-001	TZR2	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	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 (%)	
EP074F: Halogenated Aromatic Compounds (QC Lot: 2649379)										
EP1210362-001	TZR2	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit	
EP074G: Trihalomethanes (QC Lot: 2649379)										
EP1210362-001	TZR2	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
EP074H: Naphthalene (QC Lot: 2649379)										
EP1210362-001	TZR2	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2649380)										
EP1210362-001	TZR2	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP1210450-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2649380)										
EP1210362-001	TZR2	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP1210450-001	Anonymous	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080: BTEXN (QC Lot: 2649380)										
EP1210362-001	TZR2	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
			95-47-6	2	µg/L	<2	<2	0.0	No Limit	
EP1210450-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
	95-47-6	2	µg/L	<2	<2	0.0	No Limit			
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
EP201: Carbamate Pesticides by LCMS (QC Lot: 2649387)										
EP1210302-001	Anonymous	EP201: Oxamyl	23135-22-0	0.2	µg/L	<0.2	<0.2	0.0	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 (%)
EP201: Carbamate Pesticides by LCMS (QC Lot: 2649387) - continued									
EP1210302-001	Anonymous	EP201: Methomyl	16752-77-5	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: 3-Hydroxy Carbofuran	16655-82-6	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Aldicarb	116-06-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Bendiocarb	22781-23-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Thiodicarb	59669-26-0	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Carbofuran	1563-66-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Carbaryl	63-25-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Methiocarb	2032-65-7	0.2	µg/L	<0.2	<0.2	0.0	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2649390)									
EP1210362-001	TZR2	EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-DB	94-82-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPA	94-74-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-DP	120-36-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-D	94-75-7	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.5-T	93-76-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPB	94-81-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Picloram	1918-02-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.6-D	575-90-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.6-T	575-89-3	10	µg/L	<10	<10	0.0	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 Sample (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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
ED093F: Dissolved Major Cations (QCLot: 2646437)								
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	97.5	88	112
EG020T: Total Metals by ICP-MS (QCLot: 2646949)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	100	78	116
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	91.0	77	109
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.4	78	108
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.5	80	112
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	100	79	111
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	100	81	109
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	97.4	80	112
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	106	86	118
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.7	80	112
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	91.7	75	107
EG020A-T: Tin	7440-31-5	0.001	mg/L	<0.001	0.1 mg/L	118	84	134
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	95.1	74	108
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	96.4	74	120
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	97.2	75	115
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2646966)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	104	82.3	118
EK025SF: Free CN by Segmented Flow Analyser (QCLot: 2651522)								
EK025SF: Free Cyanide	----	0.004	mg/L	<0.004	0.25 mg/L	84.2	80	120
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2651523)								
EK026SF: Total Cyanide	57-12-5	0.004	mg/L	<0.004	0.2 mg/L	105	80	127
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 2651524)								
EK028SF: Weak Acid Dissociable Cyanide	----	0.004	mg/L	<0.004	0.2 mg/L	103	74	124
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2646458)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	101	87	115
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2646438)								
EK057G: Nitrite as N	----	0.01	mg/L	<0.01	0.5 mg/L	97.2	86	112
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2646457)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	101	92	112
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2646198)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	91.1	74	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2646199)								



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2646199) - continued									
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	85.4	70	130	
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2646439)									
EK071G: Reactive Phosphorus as P	----	0.01	mg/L	<0.01	0.5 mg/L	96.8	87	115	
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2648623)									
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	5 µg/L	53.4	13.4	117	
EP068A: Organochlorine Pesticides (OC) (QCLot: 2648622)									
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	69.2	26.9	125	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	64.7	17.1	121	
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	60.7	36	128	
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	73.7	36	124	
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	71.3	42	128	
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	59.4	26.5	133	
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	66.1	34	130	
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	69.7	36	130	
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	70.3	34	134	
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	67.2	42	124	
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	69.1	39	127	
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	73.1	38	134	
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	68.8	41	133	
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	68.2	29.6	148	
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	75.4	40	136	
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	76.6	38	140	
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	97.0	30.8	145	
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	68.7	36	132	
EP068: 4,4'-DDT	50-29-3	2.0	µg/L	<2.0	5 µg/L	49.2	16	142	
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	75.9	32	132	
EP068: Methoxychlor	72-43-5	2.0	µg/L	<2.0	5 µg/L	52.9	8	154	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2648622)									
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	74.0	28.5	133	
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	104	29	143	
EP068: Monocrotophos	6923-22-4	2.0	µg/L	<2.0	5 µg/L	10.0	4.2	45	
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	46.0	28.4	116	
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	68.0	39	125	
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	65.3	40	128	
EP068: Parathion-methyl	298-00-0	2.0	µg/L	<2.0	5 µg/L	63.4	33	131	
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	62.6	33	137	
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	67.1	41	127	
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	66.9	43	127	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2648622) - continued									
EP068: Parathion	56-38-2	2.0	µg/L	<2.0	5 µg/L	65.2	33	131	
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	65.0	35	125	
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	72.0	39	135	
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	66.5	38	128	
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	69.0	30.4	140	
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	67.3	40	128	
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	66.1	38	132	
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	68.6	34	134	
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	34.8	6.4	158	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2649379)									
EP074: Benzene	71-43-2	1	µg/L	<1	10 µg/L	101	76	120	
EP074: Toluene	108-88-3	2	µg/L	<2	10 µg/L	92.3	75	121	
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	93.6	74	120	
EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	20 µg/L	92.8	75	119	
	106-42-3								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	98.0	74	124	
EP074: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	97.1	75	119	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	95.1	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	98.1	72	122	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	96.2	73	121	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	95.8	72	122	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	96.6	74	122	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	95.9	73	121	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	95.8	73	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	95.2	70	126	
EP074B: Oxygenated Compounds (QCLot: 2649379)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	106	61	135	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	109	66	130	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	104	72	126	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	94.7	70	126	
EP074C: Sulfonated Compounds (QCLot: 2649379)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	101	71	127	
EP074D: Fumigants (QCLot: 2649379)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	104	71	129	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	106	74	124	
EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	99.2	73	127	
EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	110	70	130	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	97.4	74	124	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 2649379)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	106	70	130	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	115	73	125	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	115	72	128	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	108	73	127	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	103	74	124	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	113	72	130	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	110	73	129	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	79.8	42	142	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	96.1	72	126	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	103	73	125	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	102	76	122	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	108	76	124	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	98.3	74	124	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	105	73	129	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	110	76	126	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	99.7	75	125	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	102	75	127	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	105	74	122	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	97.5	72	128	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	91.3	74	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	----	----	----	----	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	83.9	54	142	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	106	61	135	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	98.2	66	132	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	91.9	66	130	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	102	66	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	108	56	140	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	97.4	66	134	
EP074F: Halogenated Aromatic Compounds (QCLot: 2649379)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	97.7	78	120	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	101	76	122	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	97.8	75	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	94.9	74	122	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	95.5	75	121	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	96.5	75	121	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	97.0	76	122	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	93.0	68	132	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	96.0	72	128	
EP074G: Trihalomethanes (QCLot: 2649379)									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
EP074G: Trihalomethanes (QCLot: 2649379) - continued									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	109	75	125	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	107	73	129	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	103	68	132	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	114	67	133	
EP074H: Naphthalene (QCLot: 2649379)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	84.5	60	120	
EP075(SIM)A: Phenolic Compounds (QCLot: 2648625)									
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	25 µg/L	47.8	17.6	57	
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	25 µg/L	75.3	37.6	118	
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	25 µg/L	84.1	35.2	105	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	50 µg/L	95.7	31.2	97.4	
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	25 µg/L	105	34.8	137	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	1	µg/L	<1.0	25 µg/L	113	38.2	126	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	1	µg/L	<1.0	25 µg/L	106	41.4	128	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	1	µg/L	<1.0	25 µg/L	85.2	44.1	122	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	1	µg/L	<1.0	25 µg/L	76.5	41.4	117	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1	µg/L	<1.0	25 µg/L	75.0	41.3	125	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1	µg/L	<1.0	25 µg/L	77.1	41.3	125	
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	25 µg/L	84.5	21.3	145	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2648625)									
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	25 µg/L	75.5	29.5	123	
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	25 µg/L	77.0	41.4	127	
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	25 µg/L	85.1	41.6	126	
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	25 µg/L	96.7	48.9	126	
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	25 µg/L	102	54.4	124	
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	25 µg/L	97.4	53.1	125	
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	25 µg/L	106	53.2	127	
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	25 µg/L	106	54.1	126	
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	25 µg/L	107	52	127	
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	25 µg/L	107	55.4	127	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	1	µg/L	<1.0	25 µg/L	102	45.6	130	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	25 µg/L	105	48.9	128	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	25 µg/L	101	50.9	124	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	25 µg/L	109	47.4	127	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	25 µg/L	107	47.2	128	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	25 µg/L	112	47.7	127	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2648624)									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2648624) - continued									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	46.2	30.7	123	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	400 µg/L	87.2	34	142	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	122	32	124	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2649380)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	320 µg/L	98.6	74.2	142	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2648624)									
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	400 µg/L	55.4	32	126	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	600 µg/L	120	32	136	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	200 µg/L	89.8	28.3	142	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2649380)									
EP080: C6 - C10 Fraction	----	20	µg/L	<20	370 µg/L	87.7	74.2	142	
EP080: BTEXN (QCLot: 2649380)									
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	91.6	72.6	122	
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	93.0	71.1	123	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	91.4	71.9	121	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	40 µg/L	99.7	72.3	122	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	97.3	72.3	121	
EP080: Naphthalene	91-20-3	5	µg/L	<5	20 µg/L	80.3	78.8	121	
EP201: Carbamate Pesticides by LCMS (QCLot: 2649387)									
EP201: Oxamyl	23135-22-0	0.2	µg/L	<0.2	1.0 µg/L	131	78.3	144	
EP201: Methomyl	16752-77-5	0.2	µg/L	<0.2	1.0 µg/L	128	59.9	137	
EP201: 3-Hydroxy Carbofuran	16655-82-6	0.2	µg/L	<0.2	1.0 µg/L	118	61.1	143	
EP201: Aldicarb	116-06-3	0.2	µg/L	<0.2	1.0 µg/L	94.4	52	128	
EP201: Bendiocarb	22781-23-3	0.2	µg/L	<0.2	1.0 µg/L	115	70.2	132	
EP201: Thiodicarb	59669-26-0	0.2	µg/L	<0.2	1.0 µg/L	101	52	144	
EP201: Carbofuran	1563-66-2	0.2	µg/L	<0.2	1.0 µg/L	108	65	151	
EP201: Carbaryl	63-25-2	0.2	µg/L	<0.2	1.0 µg/L	107	57	151	
EP201: Methiocarb	2032-65-7	0.2	µg/L	<0.2	1.0 µg/L	118	58	148	
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2649390)									
EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	100 µg/L	132	82	136	
EP202-SL: 2,4-DB	94-82-6	10	µg/L	<10	100 µg/L	135	65	147	
EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	100 µg/L	128	83	137	
EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	100 µg/L	133	75	143	
EP202-SL: MCPA	94-74-6	10	µg/L	<10	100 µg/L	135	76	140	
EP202-SL: 2,4-DP	120-36-5	10	µg/L	<10	100 µg/L	131	76	144	
EP202-SL: 2,4-D	94-75-7	10	µg/L	<10	100 µg/L	126	77	139	
EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	100 µg/L	135	77	141	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2649390) - continued									
EP202-SL: 2.4.5-TP (Silvex)	93-72-1	10	µg/L	<10	100 µg/L	132	75	143	
EP202-SL: 2.4.5-T	93-76-5	10	µg/L	<10	100 µg/L	129	78	140	
EP202-SL: MCPB	94-81-5	10	µg/L	<10	100 µg/L	132	69.2	139	
EP202-SL: Picloram	1918-02-1	10	µg/L	<10	100 µg/L	135	76	144	
EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	100 µg/L	123	77	145	
EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	100 µg/L	123	77	145	
EP202-SL: 2.6-D	575-90-6	10	µg/L	<10	----	----	----	----	
EP202-SL: 2.4.6-T	575-89-3	10	µg/L	<10	----	----	----	----	

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%) Low High	
EG020T: Total Metals by ICP-MS (QCLot: 2646949)							
EP1210362-002	TZB2	EG020A-T: Arsenic	7440-38-2	1.00 mg/L	97.0	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	98.8	70	130
		EG020A-T: Chromium	7440-47-3	1.00 mg/L	106	70	130
		EG020A-T: Copper	7440-50-8	1.00 mg/L	97.6	70	130
		EG020A-T: Lead	7439-92-1	1.00 mg/L	103	70	130
		EG020A-T: Manganese	7439-96-5	1.00 mg/L	110	70	130
		EG020A-T: Nickel	7440-02-0	1.00 mg/L	101	70	130
		EG020A-T: Zinc	7440-66-6	1.00 mg/L	100	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2646966)							
EP1210258-006	Anonymous	EG035T: Mercury	7439-97-6	0.0100 mg/L	# 65.5	70	130
EK025SF: Free CN by Segmented Flow Analyser (QCLot: 2651522)							
EP1210258-001	Anonymous	EK025SF: Free Cyanide	----	0.2 mg/L	# Not Determined	70	130
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2651523)							
EP1210258-001	Anonymous	EK026SF: Total Cyanide	57-12-5	0.2 mg/L	# Not Determined	70	130
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 2651524)							
EP1210258-001	Anonymous	EK028SF: Weak Acid Dissociable Cyanide	----	0.2 mg/L	# Not Determined	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2646458)							



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: 2646458) - continued							
EP1210361-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1.00 mg/L	107	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2646438)							
EP1210362-001	TZR2	EK057G: Nitrite as N	----	0.6 mg/L	84.3	70	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2646457)							
EP1210361-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	85.8	70	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2646198)							
EP1210361-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	25 mg/L	86.5	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2646199)							
EP1210361-003	Anonymous	EK067G: Total Phosphorus as P	----	5 mg/L	87.8	70	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2646439)							
EP1210362-001	TZR2	EK071G: Reactive Phosphorus as P	----	0.5 mg/L	105	70	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2649379)							
EP1210362-002	TZB2	EP074: Benzene	71-43-2	20 µg/L	82.9	82.7	115
		EP074: Toluene	108-88-3	20 µg/L	80.7	77.1	118
EP074E: Halogenated Aliphatic Compounds (QCLot: 2649379)							
EP1210362-002	TZB2	EP074: 1,1-Dichloroethene	75-35-4	20 µg/L	79.2	73.7	126
		EP074: Trichloroethene	79-01-6	20 µg/L	86.9	79.1	120
EP074F: Halogenated Aromatic Compounds (QCLot: 2649379)							
EP1210362-002	TZB2	EP074: Chlorobenzene	108-90-7	20 µg/L	82.7	81.4	115
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2649380)							
EP1210362-002	TZB2	EP080: C6 - C9 Fraction	----	280 µg/L	110	77.0	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2649380)							
EP1210362-002	TZB2	EP080: C6 - C10 Fraction	----	330 µg/L	91.5	77.0	137
EP080: BTEXN (QCLot: 2649380)							
EP1210362-002	TZB2	EP080: Benzene	71-43-2	20 µg/L	117	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	118	73.5	126
EP201: Carbamate Pesticides by LCMS (QCLot: 2649387)							
EP1210302-001	Anonymous	EP201: Oxamyl	23135-22-0	1.0 µg/L	126	60	130
		EP201: Methomyl	16752-77-5	1.0 µg/L	129	60	130
		EP201: 3-Hydroxy Carbofuran	16655-82-6	1.0 µg/L	128	60	130
		EP201: Aldicarb	116-06-3	1.0 µg/L	115	52	128
		EP201: Bendiocarb	22781-23-3	1.0 µg/L	117	60	130
		EP201: Thiodicarb	59669-26-0	1.0 µg/L	115	52	144
		EP201: Carbofuran	1563-66-2	1.0 µg/L	136	65	151
		EP201: Carbaryl	63-25-2	1.0 µg/L	129	57	151



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP201: Carbamate Pesticides by LCMS (QCLot: 2649387) - continued							
EP1210302-001	Anonymous	EP201: Methiocarb	2032-65-7	1.0 µg/L	136	58	148
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2649390)							
EP1210362-001	TZR2	EP202-SL: Mecoprop	93-65-2	100 µg/L	82.3	75	143
		EP202-SL: MCPA	94-74-6	100 µg/L	87.0	76	140
		EP202-SL: 2.4-D	94-75-7	100 µg/L	81.4	77	139
		EP202-SL: Triclopyr	55335-06-3	100 µg/L	81.8	77	141
		EP202-SL: 2.4.5-T	93-76-5	100 µg/L	84.2	78	140
		EP202-SL: Picloram	1918-02-1	100 µg/L	90.5	76	144
		EP202-SL: Clopyralid	1702-17-6	100 µg/L	87.1	77	145

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2646198)										
EP1210361-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	25 mg/L	86.5	----	70	130	----	----
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2646199)										
EP1210361-003	Anonymous	EK067G: Total Phosphorus as P	----	5 mg/L	87.8	----	70	130	----	----
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2646438)										
EP1210362-001	TZR2	EK057G: Nitrite as N	----	0.6 mg/L	84.3	----	70	130	----	----
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2646439)										
EP1210362-001	TZR2	EK071G: Reactive Phosphorus as P	----	0.5 mg/L	105	----	70	130	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2646457)										
EP1210361-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	85.8	----	70	130	----	----
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2646458)										
EP1210361-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1.00 mg/L	107	----	70	130	----	----
EG020T: Total Metals by ICP-MS (QCLot: 2646949)										
EP1210362-002	TZB2	EG020A-T: Arsenic	7440-38-2	1.00 mg/L	97.0	----	70	130	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	98.8	----	70	130	----	----
		EG020A-T: Chromium	7440-47-3	1.00 mg/L	106	----	70	130	----	----
		EG020A-T: Copper	7440-50-8	1.00 mg/L	97.6	----	70	130	----	----
		EG020A-T: Lead	7439-92-1	1.00 mg/L	103	----	70	130	----	----
		EG020A-T: Manganese	7439-96-5	1.00 mg/L	110	----	70	130	----	----
		EG020A-T: Nickel	7440-02-0	1.00 mg/L	101	----	70	130	----	----



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EG020T: Total Metals by ICP-MS (QCLot: 2646949) - continued										
EP1210362-002	TZB2	EG020A-T: Zinc	7440-66-6	1.00 mg/L	100	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2646966)										
EP1210258-006	Anonymous	EG035T: Mercury	7439-97-6	0.0100 mg/L	# 65.5	----	70	130	----	----
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2649379)										
EP1210362-002	TZB2	EP074: Benzene	71-43-2	20 µg/L	82.9	----	82.7	115	----	----
		EP074: Toluene	108-88-3	20 µg/L	80.7	----	77.1	118	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 2649379)										
EP1210362-002	TZB2	EP074: 1,1-Dichloroethene	75-35-4	20 µg/L	79.2	----	73.7	126	----	----
		EP074: Trichloroethene	79-01-6	20 µg/L	86.9	----	79.1	120	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 2649379)										
EP1210362-002	TZB2	EP074: Chlorobenzene	108-90-7	20 µg/L	82.7	----	81.4	115	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2649380)										
EP1210362-002	TZB2	EP080: C6 - C9 Fraction	----	280 µg/L	110	----	77.0	137	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2649380)										
EP1210362-002	TZB2	EP080: C6 - C10 Fraction	----	330 µg/L	91.5	----	77.0	137	----	----
EP080: BTEXN (QCLot: 2649380)										
EP1210362-002	TZB2	EP080: Benzene	71-43-2	20 µg/L	117	----	77.0	122	----	----
		EP080: Toluene	108-88-3	20 µg/L	118	----	73.5	126	----	----
EP201: Carbamate Pesticides by LCMS (QCLot: 2649387)										
EP1210302-001	Anonymous	EP201: Oxamyl	23135-22-0	1.0 µg/L	126	----	60	130	----	----
		EP201: Methomyl	16752-77-5	1.0 µg/L	129	----	60	130	----	----
		EP201: 3-Hydroxy Carbofuran	16655-82-6	1.0 µg/L	128	----	60	130	----	----
		EP201: Aldicarb	116-06-3	1.0 µg/L	115	----	52	128	----	----
		EP201: Bendiocarb	22781-23-3	1.0 µg/L	117	----	60	130	----	----
		EP201: Thiodicarb	59669-26-0	1.0 µg/L	115	----	52	144	----	----
		EP201: Carbofuran	1563-66-2	1.0 µg/L	136	----	65	151	----	----
		EP201: Carbaryl	63-25-2	1.0 µg/L	129	----	57	151	----	----
EP201: Methiocarb	2032-65-7	1.0 µg/L	136	----	58	148	----	----		
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2649390)										
EP1210362-001	TZR2	EP202-SL: Mecoprop	93-65-2	100 µg/L	82.3	----	75	143	----	----
		EP202-SL: MCPA	94-74-6	100 µg/L	87.0	----	76	140	----	----
		EP202-SL: 2,4-D	94-75-7	100 µg/L	81.4	----	77	139	----	----
		EP202-SL: Triclopyr	55335-06-3	100 µg/L	81.8	----	77	141	----	----
		EP202-SL: 2,4,5-T	93-76-5	100 µg/L	84.2	----	78	140	----	----
		EP202-SL: Picloram	1918-02-1	100 µg/L	90.5	----	76	144	----	----
		EP202-SL: Clopyralid	1702-17-6	100 µg/L	87.1	----	77	145	----	----
EK025SF: Free CN by Segmented Flow Analyser (QCLot: 2651522)										



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EK025SF: Free CN by Segmented Flow Analyser (QCLot: 2651522) - continued										
EP1210258-001	Anonymous	EK025SF: Free Cyanide	----	0.2 mg/L	# Not Determined	----	70	130	----	----
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2651523)										
EP1210258-001	Anonymous	EK026SF: Total Cyanide	57-12-5	0.2 mg/L	# Not Determined	----	70	130	----	----
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 2651524)										
EP1210258-001	Anonymous	EK028SF: Weak Acid Dissociable Cyanide	----	0.2 mg/L	# Not Determined	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: EP1210362	Page	: 1 of 11
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: JOSH ABBOTT	Contact	: Scott James
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: josh.abbott@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: I12147	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Burswood Stadium	Date Samples Received	: 12-DEC-2012
C-O-C number	: ----	Issue Date	: 24-DEC-2012
Sampler	: JA AJ	No. of samples received	: 2
Order number	: ----	No. of samples analysed	: 2
Quote number	: EP/689/12 V4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

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
ED093F: Dissolved Major Cations							
Amber Glass Bottle - Unpreserved (ED093F) TZR2, TZB2	12-DEC-2012	---	19-DEC-2012	----	14-DEC-2012	19-DEC-2012	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG020A-T) TZR2, TZB2	12-DEC-2012	14-DEC-2012	10-JUN-2013	✓	14-DEC-2012	10-JUN-2013	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Unfiltered; Lab-acidified (EG035T) TZR2, TZB2	12-DEC-2012	----	----	----	14-DEC-2012	09-JAN-2013	✓
EK025SF: Free CN by Segmented Flow Analyser							
White Plastic Bottle-NaOH (EK025SF) TZR2, TZB2	12-DEC-2012	---	26-DEC-2012	----	17-DEC-2012	26-DEC-2012	✓
EK026SF: Total CN by Segmented Flow Analyser							
White Plastic Bottle-NaOH (EK026SF) TZR2, TZB2	12-DEC-2012	---	26-DEC-2012	----	18-DEC-2012	26-DEC-2012	✓
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser							
White Plastic Bottle-NaOH (EK028SF) TZR2, TZB2	12-DEC-2012	---	26-DEC-2012	----	18-DEC-2012	26-DEC-2012	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) TZR2, TZB2	12-DEC-2012	---	09-JAN-2013	----	12-DEC-2012	09-JAN-2013	✓
EK057G: Nitrite as N by Discrete Analyser							
Amber Glass Bottle - Unpreserved (EK057G) TZR2, TZB2	12-DEC-2012	---	14-DEC-2012	----	12-DEC-2012	14-DEC-2012	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) TZR2, TZB2	12-DEC-2012	---	09-JAN-2013	----	12-DEC-2012	09-JAN-2013	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) TZR2, TZB2	12-DEC-2012	17-DEC-2012	09-JAN-2013	✓	17-DEC-2012	09-JAN-2013	✓



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) TZR2, TZB2	12-DEC-2012	17-DEC-2012	09-JAN-2013	✓	17-DEC-2012	09-JAN-2013	✓	
EK071G: Reactive Phosphorus as P by discrete analyser								
Amber Glass Bottle - Unpreserved (EK071G) TZR2, TZB2	12-DEC-2012	---	14-DEC-2012	----	12-DEC-2012	14-DEC-2012	✓	
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066) TZR2, TZB2	12-DEC-2012	17-DEC-2012	19-DEC-2012	✓	18-DEC-2012	27-JAN-2013	✓	
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068) TZR2, TZB2	12-DEC-2012	17-DEC-2012	19-DEC-2012	✓	18-DEC-2012	27-JAN-2013	✓	
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068) TZR2, TZB2	12-DEC-2012	17-DEC-2012	19-DEC-2012	✓	18-DEC-2012	27-JAN-2013	✓	
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) TZR2, TZB2	12-DEC-2012	17-DEC-2012	19-DEC-2012	✓	18-DEC-2012	27-JAN-2013	✓	
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) TZR2, TZB2	12-DEC-2012	14-DEC-2012	26-DEC-2012	✓	19-DEC-2012	26-DEC-2012	✓	
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) TZR2, TZB2	12-DEC-2012	14-DEC-2012	26-DEC-2012	✓	19-DEC-2012	26-DEC-2012	✓	
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) TZR2, TZB2	12-DEC-2012	14-DEC-2012	26-DEC-2012	✓	19-DEC-2012	26-DEC-2012	✓	
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) TZR2, TZB2	12-DEC-2012	14-DEC-2012	26-DEC-2012	✓	19-DEC-2012	26-DEC-2012	✓	
EP074H: Naphthalene								
Amber VOC Vial - Sulfuric Acid (EP074) TZR2, TZB2	12-DEC-2012	14-DEC-2012	26-DEC-2012	✓	19-DEC-2012	26-DEC-2012	✓	
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) TZR2, TZB2	12-DEC-2012	14-DEC-2012	26-DEC-2012	✓	19-DEC-2012	26-DEC-2012	✓	
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) TZR2, TZB2	12-DEC-2012	14-DEC-2012	26-DEC-2012	✓	19-DEC-2012	26-DEC-2012	✓	
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) TZR2, TZB2	12-DEC-2012	14-DEC-2012	26-DEC-2012	✓	19-DEC-2012	26-DEC-2012	✓	



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)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) TZR2, TZB2	12-DEC-2012	17-DEC-2012	19-DEC-2012	✓	18-DEC-2012	27-JAN-2013	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) TZR2, TZB2	12-DEC-2012	17-DEC-2012	19-DEC-2012	✓	18-DEC-2012	27-JAN-2013	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) TZR2, TZB2	12-DEC-2012	14-DEC-2012	26-DEC-2012	✓	19-DEC-2012	26-DEC-2012	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080) TZR2, TZB2	12-DEC-2012	14-DEC-2012	26-DEC-2012	✓	19-DEC-2012	26-DEC-2012	✓
EP201: Carbamate Pesticides by LCMS							
Amber Glass Bottle - Unpreserved (EP201) TZR2, TZB2	12-DEC-2012	----	----	----	17-DEC-2012	19-DEC-2012	✓
EP202A: Phenoxyacetic Acid Herbicides by LCMS							
Amber Glass Bottle - Unpreserved (EP202-SL) TZR2, TZB2	12-DEC-2012	----	----	----	18-DEC-2012	19-DEC-2012	✓



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(where) 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	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Ammonia as N by Discrete analyser	EK055G	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	7	14.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Free CN by Segmented Flow Analyser	EK025SF	2	18	11.1	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	2	50.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	2	14	14.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	7	14.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	14	14.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	2	17	11.8	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	9	11.1	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	1	10	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	19	10.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Weak Acid Dissociable Cyanide by Segmented Flow Analyser	EK028SF	2	17	11.8	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	7	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Free CN by Segmented Flow Analyser	EK025SF	1	18	5.6	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	3	33.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	7	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	2	17	11.8	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	9	22.2	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	2	10	20.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Control Samples (LCS) - Continued							
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Weak Acid Dissociable Cyanide by Segmented Flow Analyser	EK028SF	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	7	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Free CN by Segmented Flow Analyser	EK025SF	1	18	5.6	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	3	33.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	7	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	2	50.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	9	11.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	18	5.6	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Weak Acid Dissociable Cyanide by Segmented Flow Analyser	EK028SF	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	5.0	5.0	✓	ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	7	14.3	5.0	✓	ALS QCS3 requirement
Free CN by Segmented Flow Analyser	EK025SF	1	18	5.6	5.0	✓	ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.0	5.0	✓	ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	14	7.1	5.0	✓	ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	7	14.3	5.0	✓	ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	14	7.1	5.0	✓	ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	1	17	5.9	5.0	✓	ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	9	11.1	5.0	✓	ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	7	14.3	5.0	✓	ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	1	10	10.0	5.0	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	5	20.0	5.0	✓	ALS QCS3 requirement



Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<i>Analytical Methods</i>							
Matrix Spikes (MS) - Continued							
Weak Acid Dissociable Cyanide by Segmented Flow Analyser	EK028SF	1	17	5.9	5.0	✔	ALS QCS3 requirement



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
Major Cations - Dissolved	ED093F	WATER	<p>Major Cations is determined based on APHA 21st ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises the 0.45um filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)</p> <p>Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)</p> <p>Hardness parameters are calculated based on APHA 21st ed., 2340 B. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)</p>
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(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 SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Free CN by Segmented Flow Analyser	EK025SF	WATER	ASTM D7237: Using an automated segmented flow analyser, a sample at high pH (sodium hydroxide preserved) is buffered to pH 6.0. The hydrogen cyanide present passes across a gas dialysis membrane into an acceptor stream consisting of 0.01 M sodium hydroxide. The acceptor stream mixes with a buffer at pH 5.2 and reacts with chloramine-T to form cyanogen chloride. Cyanogen chloride reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour, measured at 600nm. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Cyanide by Segmented Flow Analyser	EK026SF	WATER	APHA 4500-CN-O. Sodium hydroxide preserved samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
Weak Acid Dissociable Cyanide by Segmented Flow Analyser	EK028SF	WATER	<p>APHA 4500-CN-O. Samples preserved with sodium hydroxide are introduced into an automated segmented flow analyser. Hydrogen cyanide is liberated from a slightly acidified (pH 4.5) and is dialysed. Tight cyanide complexes that would not be amenable to oxidation by chlorine are not converted. Iron cyanide complexes are precipitated with zinc acetate.</p> <p>Liberated HCN diffuses through a membrane into a stream of sodium hydroxide where it is carried as CN- The cyanide in caustic solution is buffered to pH 5.2 and further converted to cyanogen chloride by reaction with chloramine-T. Cyanogen chloride subsequently reacts with 4 μpyridine carboxylic and 1,3 - dimethylbarbituric acids to give a red colour complex. This colour is measured at 600 nm.</p> <p>This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)</p>
Ammonia as N by Discrete analyser	EK055G	WATER	<p>APHA 21st ed., 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)</p>
Nitrite as N by Discrete Analyser	EK057G	WATER	<p>APHA 21st ed., 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)</p>
Nitrate as N by Discrete Analyser	EK058G	WATER	<p>APHA 21st ed., 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 (1999) Schedule B(3) (Appdx. 2)</p>
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	<p>APHA 21st ed., 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 (1999) Schedule B(3) (Appdx. 2)</p>
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	<p>APHA 21st ed., 4500-Norg D. 25mL water samples are digested using a traditional Kjeldahl digestion followed by determination by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)</p>
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	<p>APHA 21st ed., 4500-Norg / 4500-NO3-. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)</p>
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	<p>APHA 21st ed., 4500-P B&F This procedure involves sulphuric acid digestion of a 100mL sample 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 (1999) Schedule B(3) (Appdx. 2)</p>
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	<p>APHA 21st ed., 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 (1999) Schedule B(3) (Appdx. 2)</p>
Polychlorinated Biphenyls (PCB)	EP066	WATER	<p>USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)</p>
Pesticides by GCMS	EP068	WATER	<p>USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)</p>
TPH - Semivolatle Fraction	EP071	WATER	<p>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 (1999) Schedule B(3) (Appdx. 2)</p>



<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Volatile Organic Compounds	EP074	WATER	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. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	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 (1999) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	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 NEPM (1999) Schedule B(3) (Appdx. 2)
Carbamate Pesticides by LCMS	EP201	WATER	In-house LCMS (Electrospray in positive mode). Residues of carbamates in water are concentrated on a solid phase extraction cartridge. The compounds are then eluted with 10% methanol in MTBE. The extract is evaporated to nearly dryness and reconstituted in HPLC mobile phase for LC/MS determination.
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	WATER	In-House, LCMS (Electrospray in negative mode). After adding surrogate and acetic acid, water samples are injected on a C18 column for LC/MS determination.
<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 500 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 (1999) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG035T: Total Recoverable Mercury by FIMS	EP1210258-006	Anonymous	Mercury	7439-97-6	65.5 %	70-130%	Recovery less than lower data quality objective
EK025SF: Free CN by Segmented Flow Analyser	EP1210258-001	Anonymous	Free Cyanide	----	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EK026SF: Total CN by Segmented Flow Analyser	EP1210258-001	Anonymous	Total Cyanide	57-12-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EK028SF: Weak Acid Dissociable CN by Segmented F	EP1210258-001	Anonymous	Weak Acid Dissociable Cyanide	----	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: EP1210362		
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: JOSH ABBOTT	Contact	: Scott James
Address	: 38 STATION STREET	Address	: 10 Hod Way Malaga WA Australia 6090
	: SUBIACO WA, AUSTRALIA 6008		
E-mail	: josh.abbott@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: 112147	Page	: 1 of 3
Order number	: ----		
C-O-C number	: ----	Quote number	: EP2012BOWBIS0143 (EP/689/12 V3)
Site	: Burswood Stadium		
Sampler	: JA AJ	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 12-DEC-2012	Issue Date	: 13-DEC-2012 08:16
Client Requested Due Date	: 20-DEC-2012	Scheduled Reporting Date	: 20-DEC-2012

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 3.5 - Ice present
No. of coolers/boxes	: 5 medium hard eskies	No. of samples received	: 2
Security Seal	: Intact.	No. of samples analysed	: 2

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- Please see scanned COC for sample discrepancies: extra samples , samples not received etc.
- **Samples received in appropriately pretreated and preserved containers.**
- **pH analysis should be conducted within 6 hours of sampling.**
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (SamplesPerth@alsenviro.com)
- Sample Disposal - Aqueous (14 days), Solid (90 days) from date of completion of Work Order.



Sample Container(s)/Preservation Non-Compliances

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

- No sample container / preservation non-compliance exist.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: WATER

Laboratory sample ID Client sampling date / time Client sample ID

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - Cyanide Cyanide (Total, Free & WAD - WA)	WATER - ED093F Dissolved Major Cations	WATER - EP066-PCB-WA Polychlorinated Biphenyls (PCB)	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP201 Carbamates	WATER - EP202SL Phenoxyacetic Acid	WATER - NT-08A Total Nitrogen + NO2 + NO3 + NH3 + Total P + Reactive P	WATER - W-12 OC/OP Pesticides
EP1210362-001	12-DEC-2012 11:00	TZR2	✓	✓	✓	✓	✓	✓	✓	✓
EP1210362-002	12-DEC-2012 11:00	TZB2	✓	✓	✓	✓	✓	✓	✓	✓

Matrix: WATER

Laboratory sample ID Client sampling date / time Client sample ID

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-27T TPH/BTEX/PAH/Phenols/Total 8 Metals
EP1210362-001	12-DEC-2012 11:00	TZR2	✓
EP1210362-002	12-DEC-2012 11:00	TZB2	✓

Proactive Holding Time Report

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

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: EP1210363	Page	: 1 of 51
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: JOSH ABBOTT	Contact	: Scott James
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: josh.abbott@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: I12147	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 12-DEC-2012
C-O-C number	: ----	Issue Date	: 08-JAN-2013
Sampler	: JA & AJ	No. of samples received	: 27
Site	: Burswood Stadium	No. of samples analysed	: 27
Quote number	: EP/689/12 V4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits



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.

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

- **ASS: EA033 (CRS Suite):** Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO₃) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m³ in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m³'.
- **ASS: EA033 (CRS Suite):** Retained Acidity not required because pH KCl greater than or equal to 4.5
- **EA200 Legend for Asbestos Type:**
- **EA200 'Am'** Amosite (brown asbestos)
- **EA200 'Ch'** Chrysotile (white asbestos)
- **EA200 'Cr'** Crocidolite (blue asbestos)
- **EA200 't'** Trace levels
- **EA200: 'UMF'** Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- **EA200:** Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200:** Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- **EA200N:** ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2011 NEPM for Assessment of Site Contamination
- **EA200Q:** Estimations of Asbestos weight and Percentage are not covered under the Scope of NATA Accreditation. Weights and Percentages of Asbestos are approximate estimates only. Weights and percentage estimates are based on extracted fibres, visual estimates and estimated Asbestos content in ACM. All numerical results under this method are approximate and should be used as a guide only. Asbestos Fines LOR is extrapolated from AS4964 based on the number of fibres found in trace analysis.
- **EP074:** Poor matrix spike recovery due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- **EP075sim(PAH/Speciated phenols):** Surrogate recoveries for various samples fall outside ALS dynamic control limits. However, they are within the acceptance criteria based on standard USEPA 8270 limits. No further action is required.
- **EP080:** Poor matrix spike recovery due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- **EP130:** LOR for samples raised due to the high amount of moisture present.
- **EP130:** Particular samples required dilution due to sample matrix interferences. LOR values have been adjusted accordingly.
- **EP131A :** Poor matrix spike recovery due to sample heterogeneity.
- **EP132B-SD :** Particular samples required dilution prior to analysis due to matrix interferences. LOR values have been adjusted accordingly.
- **EP132B-SD :** Poor duplicate precision due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- **EP132B-SD :** Poor matrix spike recovery due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- **EP202/EP201:** Particular samples required dilution due to matrix interferences. LOR raised due to high moisture content and dilution.



NATA Accredited Laboratory 825

Accredited for compliance with
 ISO/IEC 17025.

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Agnes Szilagyi	Senior Organic Chemist	Perth Organics
Benjamin Nicholson	Metals Chemist	Perth Inorganics
Canhuang Ke	Metals Instrument Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics
Hamish Murray	Laboratory Technician	Newcastle
Kim McCabe	Senior Inorganic Chemist	Stafford Minerals - AY
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Leanne Carey	Acid Sulfate Soils Supervisor	Perth ASS
Pabi Subba	Senior Organic Chemist	Sydney Organics
Peter Rennie	Team Leader - Asbestos	Newcastle
Rassem Ayoubi	Senior Organic Chemist	Perth Inorganics Perth Organics
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T10C01	T12C01	T14C01	T14C02	T14C03
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-001	EP1210363-002	EP1210363-003	EP1210363-004	EP1210363-005
EA150: Particle Sizing								
+75µm	----	1	%	----	----	----	50	----
+150µm	----	1	%	----	----	----	42	----
+300µm	----	1	%	----	----	----	31	----
+425µm	----	1	%	----	----	----	20	----
+600µm	----	1	%	----	----	----	13	----
+1180µm	----	1	%	----	----	----	6	----
+2.36mm	----	1	%	----	----	----	3	----
+4.75mm	----	1	%	----	----	----	2	----
+9.5mm	----	1	%	----	----	----	<1	----
+19.0mm	----	1	%	----	----	----	<1	----
+37.5mm	----	1	%	----	----	----	<1	----
+75.0mm	----	1	%	----	----	----	<1	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	54.0	38.4	48.7	49.0	47.3
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	----	31	----
Silt (2-60 µm)	----	1	%	----	----	----	16	----
Sand (0.06-2.00 mm)	----	1	%	----	----	----	50	----
Gravel (>2mm)	----	1	%	----	----	----	3	----
Cobbles (>6cm)	----	1	%	----	----	----	<1	----
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	Yes	No	No	Yes	Yes
Asbestos Type	1332-21-4	0.1	--	Ch + Cr	-	-	Ch	Am
Sample weight (dry)	----	0.01	g	215	306	192	239	338
APPROVED IDENTIFIER:	----	-	--	P.RENNIE	P.RENNIE	P.RENNIE	P.RENNIE	P.RENNIE
EA200Q: Asbestos Quantification (non-NATA)								
Weight Used for % Calculation	----	0.0010	kg	0.214	0.306	0.192	0.239	0.337
Asbestos Containing Material (ACM >7mm)	1332-21-4	0.01	%	<0.007	<0.005	<0.008	<0.006	<0.004
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.005	<0.003	<0.005	<0.004	<0.003
EG005T: Total Metals by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	14200	4140	9620	10800	7900
Arsenic	7440-38-2	5	mg/kg	10	6	7	6	7



Analytical Results

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

Client sample ID

Client sampling date / time

				T10C01	T12C01	T14C01	T14C02	T14C03
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-001	EP1210363-002	EP1210363-003	EP1210363-004	EP1210363-005
EG005T: Total Metals by ICP-AES - Continued								
Boron	7440-42-8	50	mg/kg	80	----	----	----	----
Chromium	7440-47-3	2	mg/kg	40	12	30	34	24
Copper	7440-50-8	5	mg/kg	70	26	106	117	94
Iron	7439-89-6	50	mg/kg	42000	13000	24200	28900	21000
Lead	7439-92-1	5	mg/kg	91	30	108	123	77
Manganese	7439-96-5	5	mg/kg	219	96	119	127	113
Molybdenum	7439-98-7	2	mg/kg	8	----	----	----	----
Nickel	7440-02-0	2	mg/kg	13	5	11	13	10
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Tin	7440-31-5	5	mg/kg	<5	----	----	----	----
Zinc	7440-66-6	5	mg/kg	289	102	517	600	443
Magnesium	7439-95-4	50	mg/kg	6780	----	----	----	----
EG020T: Total Metals by ICP-MS								
Cadmium	7440-43-9	0.1	mg/kg	0.7	0.2	1.0	1.0	0.8
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.2	<0.1	0.1	0.1	0.1
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	1	<1
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	<20	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	----	0.1	mg/kg	<0.1	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	1560	----	----	----	----
EK062: Total Nitrogen as N (TKN + NOx)								
Total Nitrogen as N	----	20	mg/kg	1560	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	309	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T10C01	T12C01	T14C01	T14C02	T14C03
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-001	EP1210363-002	EP1210363-003	EP1210363-004	EP1210363-005
EK071G: Reactive Phosphorus as P by discrete analyser - Continued								
Reactive Phosphorus as P	----	0.1	mg/kg	0.4	----	----	----	----
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	3.16	0.93	2.73	2.51	1.25
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	----	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	----	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	----	----	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T10C01	T12C01	T14C01	T14C02	T14C03
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-001	EP1210363-002	EP1210363-003	EP1210363-004	EP1210363-005
EP074E: Halogenated Aliphatic Compounds - Continued								
Chloromethane	74-87-3	5	mg/kg	<5	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	----	----	----	----
Bromomethane	74-83-9	5	mg/kg	<5	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	<5	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	----	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	----	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	----	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	----	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	----	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	----	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	----	----	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	----	----	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	----	----	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	----	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T10C01	T12C01	T14C01	T14C02	T14C03
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-001	EP1210363-002	EP1210363-003	EP1210363-004	EP1210363-005
EP074F: Halogenated Aromatic Compounds - Continued								
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	----	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	<5	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	<3	<3	<3	<3	<3
C10 - C14 Fraction	----	3	mg/kg	14	<3	16	9	6
C15 - C28 Fraction	----	3	mg/kg	396	59	426	284	147
C29 - C36 Fraction	----	5	mg/kg	316	76	351	220	129
^ C10 - C36 Fraction (sum)	----	3	mg/kg	726	135	793	513	282
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	----	3	mg/kg	<3	<3	<3	<3	<3
EP080-SD: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T10C01	T12C01	T14C01	T14C02	T14C03
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-001	EP1210363-002	EP1210363-003	EP1210363-004	EP1210363-005
EP080-SD: BTEXN - Continued								
Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
ortho-Xylene	95-47-6	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
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	10	µg/kg	<125	<10	<62	<62	<62
Carbophenothion	786-19-6	10	µg/kg	<125	<10	<62	<62	<62
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<125	<10.0	<62.0	<62.0	<62.0
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<125	<10	<62	<62	<62
Chlorpyrifos	2921-88-2	10	µg/kg	<125	<10	<62	<62	<62
Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<125	<10	<62	<62	<62
Demeton-S-methyl	919-86-8	10	µg/kg	<125	<10	<62	<62	<62
Diazinon	333-41-5	10	µg/kg	<125	<10	<62	<62	<62
Dichlorvos	62-73-7	10	µg/kg	<125	<10	<62	<62	<62
Dimethoate	60-51-5	10	µg/kg	<125	<10	<62	<62	<62
Ethion	563-12-2	10	µg/kg	<125	<10	<62	<62	<62
Fenamiphos	22224-92-6	10	µg/kg	<125	<10	<62	<62	<62
Fenthion	55-38-9	10	µg/kg	<125	<10	<62	<62	<62
Malathion	121-75-5	10	µg/kg	<125	<10	<62	<62	<62
Azinphos Methyl	86-50-0	10	µg/kg	<125	<10	<62	<62	<62
Monocrotophos	6923-22-4	10	µg/kg	<125	<10	<62	<62	<62
Parathion	56-38-2	10	µg/kg	<125	<10	<62	<62	<62
Parathion-methyl	298-00-0	10	µg/kg	<125	<10	<62	<62	<62
Pirimphos-ethyl	23505-41-1	10	µg/kg	<125	<10	<62	<62	<62
Prothiofos	34643-46-4	10	µg/kg	<125	<10	<62	<62	<62
EP131A: Organochlorine Pesticides								
Aldrin	309-00-2	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
alpha-BHC	319-84-6	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
beta-BHC	319-85-7	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
delta-BHC	319-86-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
4,4'-DDD	72-54-8	0.50	µg/kg	9.11	<0.50	11.8	7.88	8.50



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

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				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-001	EP1210363-002	EP1210363-003	EP1210363-004	EP1210363-005
EP131A: Organochlorine Pesticides - Continued								
4.4'-DDE	72-55-9	0.50	µg/kg	25.1	<0.50	25.5	15.9	16.1
4.4'-DDT	50-29-3	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
^ Sum of DDD + DDE + DDT	----	0.50	µg/kg	34.2	<0.50	37.3	23.8	24.6
Dieldrin	60-57-1	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
alpha-Endosulfan	959-98-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
beta-Endosulfan	33213-65-9	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endosulfan sulfate	1031-07-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
^ Endosulfan (sum)	115-29-7	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin	72-20-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin aldehyde	7421-93-4	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin ketone	53494-70-5	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Heptachlor	76-44-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Heptachlor epoxide	1024-57-3	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
gamma-BHC	58-89-9	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
Methoxychlor	72-43-5	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
cis-Chlordane	5103-71-9	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
trans-Chlordane	5103-74-2	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
^ Total Chlordane (sum)	----	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
Oxychlordane	27304-13-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
EP131B: Polychlorinated Biphenyls (as Aroclors)								
^ Total Polychlorinated biphenyls	----	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1016	12674-11-2	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1221	11104-28-2	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1232	11141-16-5	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1242	53469-21-9	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1248	12672-29-6	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1254	11097-69-1	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1260	11096-82-5	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
EP132B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	5	µg/kg	547	122	664	395	262
2-Methylnaphthalene	91-57-6	5	µg/kg	609	62	832	291	223
Acenaphthylene	208-96-8	4	µg/kg	1020	117	1250	761	388



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Compound	CAS Number	LOR	Unit	EP1210363-001	EP1210363-002	EP1210363-003	EP1210363-004	EP1210363-005
EP132B: Polynuclear Aromatic Hydrocarbons - Continued								
Acenaphthene	83-32-9	4	µg/kg	195	29	148	88	64
Fluorene	86-73-7	4	µg/kg	259	44	411	213	131
Phenanthrene	85-01-8	4	µg/kg	905	132	1160	576	398
Anthracene	120-12-7	4	µg/kg	627	83	1000	501	301
Fluoranthene	206-44-0	4	µg/kg	2190	382	2320	1690	1080
Pyrene	129-00-0	4	µg/kg	4940	620	5670	3860	1700
Benz(a)anthracene	56-55-3	4	µg/kg	1530	204	1670	1130	597
Chrysene	218-01-9	4	µg/kg	1500	216	2080	1140	594
Benzo(b)fluoranthene	205-99-2	4	µg/kg	2660	211	3490	2070	814
Benzo(k)fluoranthene	207-08-9	4	µg/kg	1030	117	986	798	380
Benzo(e)pyrene	192-97-2	4	µg/kg	1760	153	2390	1710	600
Benzo(a)pyrene	50-32-8	4	µg/kg	3460	280	3820	2470	1070
Perylene	198-55-0	4	µg/kg	468	45	619	374	153
Benzo(g,h,i)perylene	191-24-2	4	µg/kg	1570	142	2080	1440	486
Dibenz(a,h)anthracene	53-70-3	4	µg/kg	365	40	613	341	111
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	1320	110	1680	1180	390
Coronene	191-07-1	5	µg/kg	525	51	722	449	150
^ Sum of PAHs	----	4	µg/kg	27500	3160	33600	21500	9890
EP201: Carbamate Pesticides by LCMS								
Oxamyl	23135-22-0	0.02	mg/kg	<0.04	----	----	----	----
Methomyl	16752-77-5	0.02	mg/kg	<0.04	----	----	----	----
3-Hydroxy Carbofuran	16655-82-6	0.02	mg/kg	<0.04	----	----	----	----
Aldicarb	116-06-3	0.02	mg/kg	<0.04	----	----	----	----
Bendiocarb	22781-23-3	0.02	mg/kg	<0.04	----	----	----	----
Thiodicarb	59669-26-0	0.02	mg/kg	<0.04	----	----	----	----
Carbofuran	1563-66-2	0.02	mg/kg	<0.04	----	----	----	----
Carbaryl	63-25-2	0.02	mg/kg	<0.04	----	----	----	----
Methiocarb	2032-65-7	0.02	mg/kg	<0.04	----	----	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.08	----	----	----	----
2,4-DB	94-82-6	0.02	mg/kg	<0.08	----	----	----	----
Dicamba	1918-00-9	0.02	mg/kg	<0.08	----	----	----	----
Mecoprop	93-65-2	0.02	mg/kg	<0.08	----	----	----	----



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				T10C01	T12C01	T14C01	T14C02	T14C03
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-001	EP1210363-002	EP1210363-003	EP1210363-004	EP1210363-005
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued								
MCPA	94-74-6	0.02	mg/kg	<0.08	----	----	----	----
2,4-DP	120-36-5	0.02	mg/kg	<0.08	----	----	----	----
2,4-D	94-75-7	0.02	mg/kg	<0.08	----	----	----	----
Triclopyr	55335-06-3	0.02	mg/kg	<0.08	----	----	----	----
2,4,5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.08	----	----	----	----
2,4,5-T	93-76-5	0.02	mg/kg	<0.08	----	----	----	----
MCPB	94-81-5	0.02	mg/kg	<0.08	----	----	----	----
Picloram	1918-02-1	0.02	mg/kg	<0.08	----	----	----	----
Clopyralid	1702-17-6	0.02	mg/kg	<0.08	----	----	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg	<0.08	----	----	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	102	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	104	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	100	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	81.7	84.9	81.9	81.6	79.0
2-Chlorophenol-D4	93951-73-6	0.1	%	81.4	82.0	73.5	75.8	74.6
2,4,6-Tribromophenol	118-79-6	0.1	%	60.3	63.0	65.4	71.4	66.9
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	69.9	66.4	70.5	79.8	79.7
Anthracene-d10	1719-06-8	0.1	%	73.2	77.4	81.3	76.7	73.5
4-Terphenyl-d14	1718-51-0	0.1	%	70.9	75.3	79.6	80.0	78.8
EP080-SD: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	99.4	89.6	88.3	99.3	91.1
Toluene-D8	2037-26-5	0.1	%	103	94.2	78.5	103	100
4-Bromofluorobenzene	460-00-4	0.1	%	100	87.2	83.7	101	89.6
EP130S: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	62.7	38.3	59.4	51.8	75.8
EP131S: OC Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	44.4	28.2	60.6	38.4	48.8
EP131T: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	63.6	38.6	71.4	56.8	67.7
EP132T: Base/Neutral Extractable Surrogates								



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				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-001	EP1210363-002	EP1210363-003	EP1210363-004	EP1210363-005
EP132T: Base/Neutral Extractable Surrogates - Continued								
2-Fluorobiphenyl	321-60-8	0.1	%	85.0	86.8	78.6	109	114
Anthracene-d10	1719-06-8	0.1	%	111	112	116	118	115
4-Terphenyl-d14	1718-51-0	0.1	%	117	115	109	116	120
EP201S: Carbamate Surrogate								
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	0.1	%	75.4	----	----	----	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	105	----	----	----	----



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				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-006	EP1210363-007	EP1210363-008	EP1210363-009	EP1210363-010
EA150: Particle Sizing								
+75µm	----	1	%	36	----	----	----	----
+150µm	----	1	%	27	----	----	----	----
+300µm	----	1	%	20	----	----	----	----
+425µm	----	1	%	14	----	----	----	----
+600µm	----	1	%	9	----	----	----	----
+1180µm	----	1	%	4	----	----	----	----
+2.36mm	----	1	%	1	----	----	----	----
+4.75mm	----	1	%	<1	----	----	----	----
+9.5mm	----	1	%	<1	----	----	----	----
+19.0mm	----	1	%	<1	----	----	----	----
+37.5mm	----	1	%	<1	----	----	----	----
+75.0mm	----	1	%	<1	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	57.1	58.4	51.8	68.2	66.6
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	36	----	----	----	----
Silt (2-60 µm)	----	1	%	27	----	----	----	----
Sand (0.06-2.00 mm)	----	1	%	36	----	----	----	----
Gravel (>2mm)	----	1	%	1	----	----	----	----
Cobbles (>6cm)	----	1	%	<1	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	Yes	Yes	No	No	No
Asbestos Type	1332-21-4	0.1	--	Cr	Ch	-	-	-
Sample weight (dry)	----	0.01	g	239	203	290	148	163
APPROVED IDENTIFIER:	----	-	--	P.RENNIE	P.RENNIE	P.RENNIE	P.RENNIE	P.RENNIE
EA200Q: Asbestos Quantification (non-NATA)								
Weight Used for % Calculation	----	0.0010	kg	0.239	0.203	0.290	0.147	0.163
Asbestos Containing Material (ACM >7mm)	1332-21-4	0.01	%	<0.006	<0.007	<0.005	<0.010	<0.009
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.004	<0.005	<0.003	<0.007	<0.006
EG005T: Total Metals by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	13200	16400	13100	19600	18100
Arsenic	7440-38-2	5	mg/kg	7	9	9	12	10



Analytical Results

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				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-006	EP1210363-007	EP1210363-008	EP1210363-009	EP1210363-010
EG005T: Total Metals by ICP-AES - Continued								
Boron	7440-42-8	50	mg/kg	----	----	----	110	----
Chromium	7440-47-3	2	mg/kg	48	60	39	70	63
Copper	7440-50-8	5	mg/kg	88	167	109	137	113
Iron	7439-89-6	50	mg/kg	35100	40400	29500	49200	44800
Lead	7439-92-1	5	mg/kg	162	233	106	228	188
Manganese	7439-96-5	5	mg/kg	344	215	144	174	157
Molybdenum	7439-98-7	2	mg/kg	----	----	----	2	----
Nickel	7440-02-0	2	mg/kg	14	18	13	18	16
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Tin	7440-31-5	5	mg/kg	----	----	----	7	----
Zinc	7440-66-6	5	mg/kg	438	628	516	612	487
Magnesium	7439-95-4	50	mg/kg	----	----	----	8670	----
EG020T: Total Metals by ICP-MS								
Cadmium	7440-43-9	0.1	mg/kg	0.7	1.1	1.0	0.7	0.6
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	1	<1	<1	1
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	----	----	----	30	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	----	0.1	mg/kg	----	----	----	<0.1	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	----	0.1	mg/kg	----	----	----	<0.1	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	----	----	----	<0.1	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	----	----	----	2220	----
EK062: Total Nitrogen as N (TKN + NOx)								
Total Nitrogen as N	----	20	mg/kg	----	----	----	2220	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	----	----	----	541	----
EK071G: Reactive Phosphorus as P by discrete analyser								



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				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-006	EP1210363-007	EP1210363-008	EP1210363-009	EP1210363-010
EK071G: Reactive Phosphorus as P by discrete analyser - Continued								
Reactive Phosphorus as P	----	0.1	mg/kg	----	----	----	1.9	----
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	2.71	3.68	3.43	3.19	3.24
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	----	----	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg	----	----	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	----	<0.5	----
Styrene	100-42-5	0.5	mg/kg	----	----	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	----	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	----	----	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	----	----	<0.5	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	----	----	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	----	----	<0.5	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	----	----	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	----	----	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	----	----	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	----	----	<0.5	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	----	----	----	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	----	----	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	----	----	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	----	----	<5	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	----	----	----	<0.5	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	<0.5	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	<0.5	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	<0.5	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	<0.5	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	<0.5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	<5	----



Analytical Results

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Compound	CAS Number	LOR	Unit	EP1210363-006	EP1210363-007	EP1210363-008	EP1210363-009	EP1210363-010
EP074E: Halogenated Aliphatic Compounds - Continued								
Chloromethane	74-87-3	5	mg/kg	----	----	----	<5	----
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	<5	----
Bromomethane	74-83-9	5	mg/kg	----	----	----	<5	----
Chloroethane	75-00-3	5	mg/kg	----	----	----	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	<5	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	<0.5	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	<0.5	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	<0.5	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	<0.5	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	<0.5	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	<0.5	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	<0.5	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	<0.5	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	<0.5	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	<0.5	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	<0.5	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	<0.5	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	<0.5	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	<0.5	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	<0.5	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	<0.5	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	<0.5	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	<0.5	----



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Compound	CAS Number	LOR	Unit	EP1210363-006	EP1210363-007	EP1210363-008	EP1210363-009	EP1210363-010
EP074F: Halogenated Aromatic Compounds - Continued								
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	<0.5	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	<0.5	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	<0.5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	----	----	----	<0.5	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	----	----	----	<5	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	<3	<3	<3	<3	<3
C10 - C14 Fraction	----	3	mg/kg	7	10	23	12	7
C15 - C28 Fraction	----	3	mg/kg	174	174	539	136	161
C29 - C36 Fraction	----	5	mg/kg	148	171	395	145	135
^ C10 - C36 Fraction (sum)	----	3	mg/kg	329	355	957	293	303
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	----	3	mg/kg	<3	<3	<3	<3	<3
EP080-SD: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2



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Compound	CAS Number	LOR	Unit	EP1210363-006	EP1210363-007	EP1210363-008	EP1210363-009	EP1210363-010
EP080-SD: BTEXN - Continued								
Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
ortho-Xylene	95-47-6	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
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	10	µg/kg	<125	<125	<125	<12	<12
Carbophenothion	786-19-6	10	µg/kg	<125	<125	<125	<12	<12
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<125	<125	<125	<12.0	<12.0
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<125	<125	<125	<12	<12
Chlorpyrifos	2921-88-2	10	µg/kg	<125	<125	<125	<12	<12
Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<125	<125	<125	<12	<12
Demeton-S-methyl	919-86-8	10	µg/kg	<125	<125	<125	<12	<12
Diazinon	333-41-5	10	µg/kg	<125	<125	<125	<12	<12
Dichlorvos	62-73-7	10	µg/kg	<125	<125	<125	<12	<12
Dimethoate	60-51-5	10	µg/kg	<125	<125	<125	<12	<12
Ethion	563-12-2	10	µg/kg	<125	<125	<125	<12	<12
Fenamiphos	22224-92-6	10	µg/kg	<125	<125	<125	<12	<12
Fenthion	55-38-9	10	µg/kg	<125	<125	<125	<12	<12
Malathion	121-75-5	10	µg/kg	<125	<125	<125	<12	<12
Azinphos Methyl	86-50-0	10	µg/kg	<125	<125	<125	<12	<12
Monocrotophos	6923-22-4	10	µg/kg	<125	<125	<125	<12	<12
Parathion	56-38-2	10	µg/kg	<125	<125	<125	<12	<12
Parathion-methyl	298-00-0	10	µg/kg	<125	<125	<125	<12	<12
Pirimphos-ethyl	23505-41-1	10	µg/kg	<125	<125	<125	<12	<12
Prothiofos	34643-46-4	10	µg/kg	<125	<125	<125	<12	<12
EP131A: Organochlorine Pesticides								
Aldrin	309-00-2	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
alpha-BHC	319-84-6	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
beta-BHC	319-85-7	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
delta-BHC	319-86-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
4,4'-DDD	72-54-8	0.50	µg/kg	4.96	7.97	8.59	0.63	2.33



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Compound	CAS Number	LOR	Unit	EP1210363-006	EP1210363-007	EP1210363-008	EP1210363-009	EP1210363-010
EP131A: Organochlorine Pesticides - Continued								
4.4'-DDE	72-55-9	0.50	µg/kg	7.37	12.2	22.5	<0.50	<0.50
4.4'-DDT	50-29-3	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
^ Sum of DDD + DDE + DDT	----	0.50	µg/kg	12.3	20.2	31.1	0.63	2.33
Dieldrin	60-57-1	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
alpha-Endosulfan	959-98-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
beta-Endosulfan	33213-65-9	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endosulfan sulfate	1031-07-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
^ Endosulfan (sum)	115-29-7	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin	72-20-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin aldehyde	7421-93-4	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin ketone	53494-70-5	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Heptachlor	76-44-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Heptachlor epoxide	1024-57-3	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
gamma-BHC	58-89-9	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
Methoxychlor	72-43-5	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
cis-Chlordane	5103-71-9	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
trans-Chlordane	5103-74-2	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
^ Total Chlordane (sum)	----	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
Oxychlordane	27304-13-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
EP131B: Polychlorinated Biphenyls (as Aroclors)								
^ Total Polychlorinated biphenyls	----	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1016	12674-11-2	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1221	11104-28-2	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1232	11141-16-5	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1242	53469-21-9	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1248	12672-29-6	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1254	11097-69-1	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1260	11096-82-5	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
EP132B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	5	µg/kg	191	296	625	118	120
2-Methylnaphthalene	91-57-6	5	µg/kg	130	191	392	77	82
Acenaphthylene	208-96-8	4	µg/kg	258	288	801	156	188



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Compound	CAS Number	LOR	Unit	EP1210363-006	EP1210363-007	EP1210363-008	EP1210363-009	EP1210363-010
EP132B: Polynuclear Aromatic Hydrocarbons - Continued								
Acenaphthene	83-32-9	4	µg/kg	52	84	244	<50	<50
Fluorene	86-73-7	4	µg/kg	85	120	257	58	62
Phenanthrene	85-01-8	4	µg/kg	265	451	721	142	166
Anthracene	120-12-7	4	µg/kg	156	218	540	99	104
Fluoranthene	206-44-0	4	µg/kg	740	969	3080	385	446
Pyrene	129-00-0	4	µg/kg	1200	1580	5810	588	626
Benz(a)anthracene	56-55-3	4	µg/kg	412	468	1650	210	244
Chrysene	218-01-9	4	µg/kg	405	436	1660	229	255
Benzo(b)fluoranthene	205-99-2	4	µg/kg	480	591	1720	297	356
Benzo(k)fluoranthene	207-08-9	4	µg/kg	221	166	769	130	150
Benzo(e)pyrene	192-97-2	4	µg/kg	345	372	1210	198	228
Benzo(a)pyrene	50-32-8	4	µg/kg	598	550	2220	300	368
Perylene	198-55-0	4	µg/kg	109	112	353	61	73
Benzo(g,h,i)perylene	191-24-2	4	µg/kg	280	281	888	150	195
Dibenz(a,h)anthracene	53-70-3	4	µg/kg	88	81	280	<50	55
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	225	205	711	106	141
Coronene	191-07-1	5	µg/kg	104	70	261	<50	62
^ Sum of PAHs	----	4	µg/kg	6340	7530	24200	3300	3920
EP201: Carbamate Pesticides by LCMS								
Oxamyl	23135-22-0	0.02	mg/kg	----	----	----	<0.02	----
Methomyl	16752-77-5	0.02	mg/kg	----	----	----	<0.02	----
3-Hydroxy Carbofuran	16655-82-6	0.02	mg/kg	----	----	----	<0.02	----
Aldicarb	116-06-3	0.02	mg/kg	----	----	----	<0.02	----
Bendiocarb	22781-23-3	0.02	mg/kg	----	----	----	<0.02	----
Thiodicarb	59669-26-0	0.02	mg/kg	----	----	----	<0.02	----
Carbofuran	1563-66-2	0.02	mg/kg	----	----	----	<0.02	----
Carbaryl	63-25-2	0.02	mg/kg	----	----	----	<0.02	----
Methiocarb	2032-65-7	0.02	mg/kg	----	----	----	<0.02	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	----	----	----	<0.04	----
2,4-DB	94-82-6	0.02	mg/kg	----	----	----	<0.04	----
Dicamba	1918-00-9	0.02	mg/kg	----	----	----	<0.04	----
Mecoprop	93-65-2	0.02	mg/kg	----	----	----	<0.04	----



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Compound	CAS Number	LOR	Unit	EP1210363-006	EP1210363-007	EP1210363-008	EP1210363-009	EP1210363-010
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued								
MCPA	94-74-6	0.02	mg/kg	----	----	----	<0.04	----
2,4-DP	120-36-5	0.02	mg/kg	----	----	----	<0.04	----
2,4-D	94-75-7	0.02	mg/kg	----	----	----	<0.04	----
Triclopyr	55335-06-3	0.02	mg/kg	----	----	----	<0.04	----
2,4,5-TP (Silvex)	93-72-1	0.02	mg/kg	----	----	----	<0.04	----
2,4,5-T	93-76-5	0.02	mg/kg	----	----	----	<0.04	----
MCPB	94-81-5	0.02	mg/kg	----	----	----	<0.04	----
Picloram	1918-02-1	0.02	mg/kg	----	----	----	<0.04	----
Clopyralid	1702-17-6	0.02	mg/kg	----	----	----	<0.04	----
Fluroxypyr	69377-81-7	0.02	mg/kg	----	----	----	<0.04	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	----	105	----
Toluene-D8	2037-26-5	0.1	%	----	----	----	101	----
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	----	93.0	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	79.9	85.7	86.6	88.5	83.1
2-Chlorophenol-D4	93951-73-6	0.1	%	75.5	79.7	79.5	78.6	81.6
2,4,6-Tribromophenol	118-79-6	0.1	%	60.5	79.3	86.0	82.4	84.3
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	77.1	79.9	87.6	84.5	85.9
Anthracene-d10	1719-06-8	0.1	%	81.2	78.4	80.7	75.5	77.2
4-Terphenyl-d14	1718-51-0	0.1	%	69.0	71.6	77.4	75.9	76.1
EP080-SD: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	110	82.6	97.2	94.6	94.6
Toluene-D8	2037-26-5	0.1	%	133	83.8	102	82.6	86.5
4-Bromofluorobenzene	460-00-4	0.1	%	122	84.9	118	87.7	81.8
EP130S: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	64.4	74.1	55.6	49.6	40.9
EP131S: OC Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	69.6	73.2	32.2	55.1	41.8
EP131T: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	74.7	55.0	93.9	59.2	40.9
EP132T: Base/Neutral Extractable Surrogates								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T15C01	T15C02	T16C01	T17C01	T17C02
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-006	EP1210363-007	EP1210363-008	EP1210363-009	EP1210363-010
EP132T: Base/Neutral Extractable Surrogates - Continued								
2-Fluorobiphenyl	321-60-8	0.1	%	113	112	82.6	120	85.2
Anthracene-d10	1719-06-8	0.1	%	106	118	121	109	112
4-Terphenyl-d14	1718-51-0	0.1	%	113	122	121	115	111
EP201S: Carbamate Surrogate								
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	0.1	%	----	----	----	76.1	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	----	----	----	95.6	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T18C01	T18C02	T18C03	T19C01	T19C02
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-011	EP1210363-012	EP1210363-013	EP1210363-014	EP1210363-015
EA150: Particle Sizing								
+75µm	----	1	%	----	5	5	----	20
+150µm	----	1	%	----	4	5	----	14
+300µm	----	1	%	----	3	4	----	9
+425µm	----	1	%	----	3	4	----	7
+600µm	----	1	%	----	3	4	----	4
+1180µm	----	1	%	----	2	3	----	1
+2.36mm	----	1	%	----	2	2	----	<1
+4.75mm	----	1	%	----	2	<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
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	68.8	69.2	68.9	64.3	58.3
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	37	45	----	43
Silt (2-60 µm)	----	1	%	----	55	47	----	34
Sand (0.06-2.00 mm)	----	1	%	----	6	6	----	22
Gravel (>2mm)	----	1	%	----	2	2	----	1
Cobbles (>6cm)	----	1	%	----	<1	<1	----	<1
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	No	No	No
Asbestos Type	1332-21-4	0.1	--	-	-	-	-	-
Sample weight (dry)	----	0.01	g	230	188	184	116	219
APPROVED IDENTIFIER:	----	-	--	P.RENNIE	P.RENNIE	P.RENNIE	P.RENNIE	P.RENNIE
EA200Q: Asbestos Quantification (non-NATA)								
Weight Used for % Calculation	----	0.0010	kg	0.229	0.187	0.184	0.115	0.219
Asbestos Containing Material (ACM >7mm)	1332-21-4	0.01	%	<0.007	<0.008	<0.008	<0.014	<0.007
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.004	<0.005	<0.005	<0.009	<0.005
EG005T: Total Metals by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	17800	18100	18300	18400	14700
Arsenic	7440-38-2	5	mg/kg	10	10	11	13	8



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T18C01	T18C02	T18C03	T19C01	T19C02
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-011	EP1210363-012	EP1210363-013	EP1210363-014	EP1210363-015
EG005T: Total Metals by ICP-AES - Continued								
Chromium	7440-47-3	2	mg/kg	57	61	61	57	46
Copper	7440-50-8	5	mg/kg	79	97	87	99	98
Iron	7439-89-6	50	mg/kg	45000	48000	48500	44800	35100
Lead	7439-92-1	5	mg/kg	129	154	152	132	104
Manganese	7439-96-5	5	mg/kg	186	190	180	159	122
Nickel	7440-02-0	2	mg/kg	16	17	16	16	14
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Zinc	7440-66-6	5	mg/kg	365	448	433	431	330
EG020T: Total Metals by ICP-MS								
Cadmium	7440-43-9	0.1	mg/kg	0.4	0.5	0.5	0.4	0.6
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	2	<1	<1	1	<1
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	----	----	----	----	<20
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	----	0.1	mg/kg	----	----	----	----	<0.1
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	----	0.1	mg/kg	----	----	----	----	<0.1
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	----	----	----	----	<0.1
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	----	----	----	----	1550
EK062: Total Nitrogen as N (TKN + NOx)								
^ Total Nitrogen as N	----	20	mg/kg	----	----	----	----	1550
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	----	----	----	----	382
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	----	0.1	mg/kg	----	----	----	----	2.2
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	3.04	3.24	3.09	2.98	1.30
EP075(SIM)A: Phenolic Compounds								



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T18C01	T18C02	T18C03	T19C01	T19C02
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-011	EP1210363-012	EP1210363-013	EP1210363-014	EP1210363-015
EP075(SIM)A: Phenolic Compounds - Continued								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	<3	<3	<3	<3	<3
C10 - C14 Fraction	----	3	mg/kg	<3	5	9	6	<3
C15 - C28 Fraction	----	3	mg/kg	56	94	127	124	101
C29 - C36 Fraction	----	5	mg/kg	61	98	104	125	90
^ C10 - C36 Fraction (sum)	----	3	mg/kg	117	197	240	255	191
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	----	3	mg/kg	<3	<3	<3	<3	<3
EP080-SD: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
ortho-Xylene	95-47-6	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
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	10	µg/kg	<12	<12	<12	<12	<12
Carbophenothion	786-19-6	10	µg/kg	<12	<12	<12	<12	<12
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<12.0	<12.0	<12.0	<12.0	<12.0
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<12	<12	<12	<12	<12



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T18C01	T18C02	T18C03	T19C01	T19C02
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-011	EP1210363-012	EP1210363-013	EP1210363-014	EP1210363-015
EP130A: Organophosphorus Pesticides (Ultra-trace) - Continued								
Chlorpyrifos	2921-88-2	10	µg/kg	<12	<12	<12	<12	<12
Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<12	<12	<12	<12	<12
Demeton-S-methyl	919-86-8	10	µg/kg	<12	<12	<12	<12	<12
Diazinon	333-41-5	10	µg/kg	<12	<12	<12	<12	<12
Dichlorvos	62-73-7	10	µg/kg	<12	<12	<12	<12	<12
Dimethoate	60-51-5	10	µg/kg	<12	<12	<12	<12	<12
Ethion	563-12-2	10	µg/kg	<12	<12	<12	<12	<12
Fenamiphos	22224-92-6	10	µg/kg	<12	<12	<12	<12	<12
Fenthion	55-38-9	10	µg/kg	<12	<12	<12	<12	<12
Malathion	121-75-5	10	µg/kg	<12	<12	<12	<12	<12
Azinphos Methyl	86-50-0	10	µg/kg	<12	<12	<12	<12	<12
Monocrotophos	6923-22-4	10	µg/kg	<12	<12	<12	<12	<12
Parathion	56-38-2	10	µg/kg	<12	<12	<12	<12	<12
Parathion-methyl	298-00-0	10	µg/kg	<12	<12	<12	<12	<12
Pirimphos-ethyl	23505-41-1	10	µg/kg	<12	<12	<12	<12	<12
Prothiofos	34643-46-4	10	µg/kg	<12	<12	<12	<12	<12
EP131A: Organochlorine Pesticides								
Aldrin	309-00-2	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
alpha-BHC	319-84-6	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
beta-BHC	319-85-7	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
delta-BHC	319-86-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
4,4'-DDD	72-54-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
4,4'-DDE	72-55-9	0.50	µg/kg	1.05	2.63	<0.50	1.24	0.56
4,4'-DDT	50-29-3	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
^ Sum of DDD + DDE + DDT	----	0.50	µg/kg	1.05	2.63	<0.50	1.24	0.56
Dieldrin	60-57-1	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
alpha-Endosulfan	959-98-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
beta-Endosulfan	33213-65-9	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endosulfan sulfate	1031-07-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
^ Endosulfan (sum)	115-29-7	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin	72-20-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin aldehyde	7421-93-4	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin ketone	53494-70-5	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Heptachlor	76-44-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T18C01	T18C02	T18C03	T19C01	T19C02
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-011	EP1210363-012	EP1210363-013	EP1210363-014	EP1210363-015
EP131A: Organochlorine Pesticides - Continued								
Heptachlor epoxide	1024-57-3	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
gamma-BHC	58-89-9	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
Methoxychlor	72-43-5	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
cis-Chlordane	5103-71-9	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
trans-Chlordane	5103-74-2	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
^ Total Chlordane (sum)	----	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
Oxychlordane	27304-13-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
EP131B: Polychlorinated Biphenyls (as Aroclors)								
^ Total Polychlorinated biphenyls	----	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1016	12674-11-2	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1221	11104-28-2	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1232	11141-16-5	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1242	53469-21-9	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1248	12672-29-6	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1254	11097-69-1	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1260	11096-82-5	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
EP132B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	5	µg/kg	110	110	160	104	94
2-Methylnaphthalene	91-57-6	5	µg/kg	72	69	116	67	64
Acenaphthylene	208-96-8	4	µg/kg	150	132	241	123	91
Acenaphthene	83-32-9	4	µg/kg	<50	<50	60	<50	<50
Fluorene	86-73-7	4	µg/kg	54	54	78	51	<50
Phenanthrene	85-01-8	4	µg/kg	117	116	206	114	86
Anthracene	120-12-7	4	µg/kg	78	75	140	75	55
Fluoranthene	206-44-0	4	µg/kg	312	317	546	293	214
Pyrene	129-00-0	4	µg/kg	451	469	789	444	310
Benz(a)anthracene	56-55-3	4	µg/kg	160	170	308	164	122
Chrysene	218-01-9	4	µg/kg	196	185	317	164	124
Benzo(b)fluoranthene	205-99-2	4	µg/kg	245	299	489	262	179
Benzo(k)fluoranthene	207-08-9	4	µg/kg	133	112	265	79	65
Benzo(e)pyrene	192-97-2	4	µg/kg	171	193	355	166	114
Benzo(a)pyrene	50-32-8	4	µg/kg	277	291	556	231	165



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				T18C01	T18C02	T18C03	T19C01	T19C02
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-011	EP1210363-012	EP1210363-013	EP1210363-014	EP1210363-015
EP132B: Polynuclear Aromatic Hydrocarbons - Continued								
Perylene	198-55-0	4	µg/kg	56	57	106	54	<50
Benzo(g,h,i)perylene	191-24-2	4	µg/kg	140	140	272	138	96
Dibenz(a,h)anthracene	53-70-3	4	µg/kg	<50	<50	66	<50	<50
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	100	90	184	85	62
Coronene	191-07-1	5	µg/kg	<50	<50	62	<50	<50
^ Sum of PAHs	----	4	µg/kg	2820	2880	5320	2610	1840
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	82.0	80.7	80.0	73.9	78.4
2-Chlorophenol-D4	93951-73-6	0.1	%	74.0	66.6	68.6	72.0	70.7
2,4,6-Tribromophenol	118-79-6	0.1	%	84.6	83.0	83.3	70.3	86.5
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	80.5	82.2	82.6	67.1	84.3
Anthracene-d10	1719-06-8	0.1	%	78.3	78.6	80.3	60.8	79.9
4-Terphenyl-d14	1718-51-0	0.1	%	76.1	75.3	79.3	62.8	79.4
EP080-SD: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	98.1	101	83.9	104	103
Toluene-D8	2037-26-5	0.1	%	82.4	87.4	96.2	119	111
4-Bromofluorobenzene	460-00-4	0.1	%	80.2	85.6	89.3	104	112
EP130S: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	50.3	51.2	50.9	44.1	45.1
EP131S: OC Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	49.1	39.4	33.8	30.8	24.5
EP131T: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	51.6	36.6	70.0	19.7	15.0
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	94.4	90.4	91.1	80.2	116
Anthracene-d10	1719-06-8	0.1	%	104	113	124	111	117
4-Terphenyl-d14	1718-51-0	0.1	%	118	109	111	120	112



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Compound	CAS Number	LOR	Unit	EP1210363-016	EP1210363-017	EP1210363-018	EP1210363-019	EP1210363-020
EA150: Particle Sizing								
+75µm	----	1	%	----	6	----	----	20
+150µm	----	1	%	----	5	----	----	14
+300µm	----	1	%	----	4	----	----	11
+425µm	----	1	%	----	4	----	----	9
+600µm	----	1	%	----	4	----	----	8
+1180µm	----	1	%	----	4	----	----	6
+2.36mm	----	1	%	----	3	----	----	5
+4.75mm	----	1	%	----	<1	----	----	4
+9.5mm	----	1	%	----	<1	----	----	2
+19.0mm	----	1	%	----	<1	----	----	<1
+37.5mm	----	1	%	----	<1	----	----	<1
+75.0mm	----	1	%	----	<1	----	----	<1
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	71.4	71.3	62.0	64.5	52.2
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	26	----	----	38
Silt (2-60 µm)	----	1	%	----	68	----	----	42
Sand (0.06-2.00 mm)	----	1	%	----	3	----	----	15
Gravel (>2mm)	----	1	%	----	3	----	----	5
Cobbles (>6cm)	----	1	%	----	<1	----	----	<1
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	No	No	Yes
Asbestos Type	1332-21-4	0.1	--	-	-	-	-	Ch
Sample weight (dry)	----	0.01	g	114	147	246	137	207
APPROVED IDENTIFIER:	----	-	--	P.RENNIE	P.RENNIE	P.RENNIE	P.RENNIE	P.RENNIE
EA200Q: Asbestos Quantification (non-NATA)								
Weight Used for % Calculation	----	0.0010	kg	0.114	0.146	0.246	0.137	0.202
Asbestos Containing Material (ACM >7mm)	1332-21-4	0.01	%	<0.013	<0.010	<0.006	<0.011	<0.007
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.009	<0.007	<0.004	<0.007	<0.005
EG005T: Total Metals by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	18100	19300	18500	19100	11900
Arsenic	7440-38-2	5	mg/kg	13	11	10	9	7



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Compound	CAS Number	LOR	Unit	EP1210363-016	EP1210363-017	EP1210363-018	EP1210363-019	EP1210363-020
EG005T: Total Metals by ICP-AES - Continued								
Boron	7440-42-8	50	mg/kg	----	----	----	100	80
Chromium	7440-47-3	2	mg/kg	52	58	55	60	35
Copper	7440-50-8	5	mg/kg	75	79	107	102	27
Iron	7439-89-6	50	mg/kg	48300	50400	42600	44500	35000
Lead	7439-92-1	5	mg/kg	96	116	103	141	23
Manganese	7439-96-5	5	mg/kg	207	234	168	137	212
Molybdenum	7439-98-7	2	mg/kg	----	----	----	2	4
Nickel	7440-02-0	2	mg/kg	15	16	18	16	11
Selenium	7782-49-2	5	mg/kg	<5	7	<5	<5	<5
Tin	7440-31-5	5	mg/kg	----	----	----	<5	<5
Zinc	7440-66-6	5	mg/kg	351	350	391	422	48
Magnesium	7439-95-4	50	mg/kg	----	----	----	7560	4730
EG020T: Total Metals by ICP-MS								
Cadmium	7440-43-9	0.1	mg/kg	0.2	0.4	0.7	0.5	<0.1
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	<1	<1	<1	<1	<1
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	3.28	3.27	2.88	3.03	2.71
EP074A: Monocyclic Aromatic Hydrocarbons								
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
Styrene	100-42-5	0.5	mg/kg	----	----	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	----	<0.5	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg	----	----	----	<0.5	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg	----	----	----	<0.5	<0.5
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	----	----	<0.5	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	----	----	<0.5	<0.5
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	----	----	<0.5	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	----	----	<0.5	<0.5



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Compound	CAS Number	LOR	Unit	EP1210363-016	EP1210363-017	EP1210363-018	EP1210363-019	EP1210363-020
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	----	----	<0.5	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg	----	----	----	<0.5	<0.5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	----	----	----	<5	<5
2-Butanone (MEK)	78-93-3	5	mg/kg	----	----	----	<5	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	----	----	<5	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	----	----	<5	<5
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	----	----	----	<0.5	<0.5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	<0.5	<0.5
1,2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	<0.5	<0.5
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	<0.5	<0.5
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	<0.5	<0.5
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	<0.5	<0.5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	<5	<5
Chloromethane	74-87-3	5	mg/kg	----	----	----	<5	<5
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	<5	<5
Bromomethane	74-83-9	5	mg/kg	----	----	----	<5	<5
Chloroethane	75-00-3	5	mg/kg	----	----	----	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	<5	<5
1,1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	----	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	----	----	----	<0.5	<0.5
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	----	<0.5	<0.5
1,1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	----	<0.5	<0.5
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	----	<0.5	<0.5
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	----	<0.5	<0.5
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	----	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	----	<0.5	<0.5
1,2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	----	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	----	----	----	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	----	----	----	<0.5	<0.5



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Compound	CAS Number	LOR	Unit	EP1210363-016	EP1210363-017	EP1210363-018	EP1210363-019	EP1210363-020
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	----	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	----	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	----	----	----	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	----	----	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	----	----	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	----	----	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	----	----	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	----	----	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	----	----	----	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	----	----	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	----	----	<0.5	<0.5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	----	----	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	----	----	----	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	----	----	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	----	----	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	<0.5	<0.5
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg	----	----	----	<0.5	<0.5
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	----	----	----	<5	<5
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1



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Compound	CAS Number	LOR	Unit	EP1210363-016	EP1210363-017	EP1210363-018	EP1210363-019	EP1210363-020
EP075(SIM)A: Phenolic Compounds - Continued								
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	<3	<3	<3	<3	<3
C10 - C14 Fraction	----	3	mg/kg	6	20	6	14	22
C15 - C28 Fraction	----	3	mg/kg	59	136	130	179	596
C29 - C36 Fraction	----	5	mg/kg	57	113	132	160	244
^ C10 - C36 Fraction (sum)	----	3	mg/kg	122	269	268	353	862
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	----	3	mg/kg	<3	<3	<3	<3	<3
EP080-SD: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
ortho-Xylene	95-47-6	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
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	10	µg/kg	<12	<12	<12	<12	<125
Carbophenothion	786-19-6	10	µg/kg	<12	<12	<12	<12	<125
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<12.0	<12.0	<12.0	<12.0	<125
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<12	<12	<12	<12	<125
Chlorpyrifos	2921-88-2	10	µg/kg	<12	<12	<12	<12	<125
Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<12	<12	<12	<12	<125
Demeton-S-methyl	919-86-8	10	µg/kg	<12	<12	<12	<12	<125
Diazinon	333-41-5	10	µg/kg	<12	<12	<12	<12	<125



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Compound	CAS Number	LOR	Unit	EP1210363-016	EP1210363-017	EP1210363-018	EP1210363-019	EP1210363-020
EP130A: Organophosphorus Pesticides (Ultra-trace) - Continued								
Dichlorvos	62-73-7	10	µg/kg	<12	<12	<12	<12	<125
Dimethoate	60-51-5	10	µg/kg	<12	<12	<12	<12	<125
Ethion	563-12-2	10	µg/kg	<12	<12	<12	<12	<125
Fenamiphos	22224-92-6	10	µg/kg	<12	<12	<12	<12	<125
Fenthion	55-38-9	10	µg/kg	<12	<12	<12	<12	<125
Malathion	121-75-5	10	µg/kg	<12	<12	<12	<12	<125
Azinphos Methyl	86-50-0	10	µg/kg	<12	<12	<12	<12	<125
Monocrotophos	6923-22-4	10	µg/kg	<12	<12	<12	<12	<125
Parathion	56-38-2	10	µg/kg	<12	<12	<12	<12	<125
Parathion-methyl	298-00-0	10	µg/kg	<12	<12	<12	<12	<125
Pirimphos-ethyl	23505-41-1	10	µg/kg	<12	<12	<12	<12	<125
Prothiofos	34643-46-4	10	µg/kg	<12	<12	<12	<12	<125
EP131A: Organochlorine Pesticides								
Aldrin	309-00-2	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
alpha-BHC	319-84-6	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
beta-BHC	319-85-7	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
delta-BHC	319-86-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
4,4'-DDD	72-54-8	0.50	µg/kg	<0.50	<0.50	1.21	<0.50	<0.50
4,4'-DDE	72-55-9	0.50	µg/kg	<0.50	<0.50	4.75	1.34	10.6
4,4'-DDT	50-29-3	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
^ Sum of DDD + DDE + DDT	----	0.50	µg/kg	<0.50	<0.50	5.96	1.34	10.6
Dieldrin	60-57-1	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
alpha-Endosulfan	959-98-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
beta-Endosulfan	33213-65-9	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endosulfan sulfate	1031-07-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
^ Endosulfan (sum)	115-29-7	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin	72-20-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin aldehyde	7421-93-4	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin ketone	53494-70-5	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Heptachlor	76-44-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Heptachlor epoxide	1024-57-3	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
gamma-BHC	58-89-9	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
Methoxychlor	72-43-5	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50



Analytical Results

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				T20C01	T20C02	T22C01	T23C01	T24C01
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-016	EP1210363-017	EP1210363-018	EP1210363-019	EP1210363-020
EP131A: Organochlorine Pesticides - Continued								
cis-Chlordane	5103-71-9	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
trans-Chlordane	5103-74-2	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
^ Total Chlordane (sum)	----	0.25	µg/kg	<0.25	<0.25	<0.25	<0.25	<0.25
Oxychlordane	27304-13-8	0.50	µg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
EP131B: Polychlorinated Biphenyls (as Aroclors)								
^ Total Polychlorinated biphenyls	----	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1016	12674-11-2	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1221	11104-28-2	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1232	11141-16-5	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1242	53469-21-9	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1248	12672-29-6	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1254	11097-69-1	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
Aroclor 1260	11096-82-5	5.0	µg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
EP132B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	5	µg/kg	108	120	233	110	175
2-Methylnaphthalene	91-57-6	5	µg/kg	73	74	140	58	87
Acenaphthylene	208-96-8	4	µg/kg	91	112	183	83	298
Acenaphthene	83-32-9	4	µg/kg	<50	<50	53	<50	<50
Fluorene	86-73-7	4	µg/kg	<50	55	83	<50	70
Phenanthrene	85-01-8	4	µg/kg	84	125	231	101	209
Anthracene	120-12-7	4	µg/kg	<50	65	120	<50	138
Fluoranthene	206-44-0	4	µg/kg	204	298	516	213	570
Pyrene	129-00-0	4	µg/kg	300	425	836	287	1460
Benz(a)anthracene	56-55-3	4	µg/kg	114	161	312	120	474
Chrysene	218-01-9	4	µg/kg	123	181	291	142	445
Benzo(b)fluoranthene	205-99-2	4	µg/kg	172	251	407	160	617
Benzo(k)fluoranthene	207-08-9	4	µg/kg	62	94	117	95	218
Benzo(e)pyrene	192-97-2	4	µg/kg	112	169	266	112	384
Benzo(a)pyrene	50-32-8	4	µg/kg	164	240	398	177	734
Perylene	198-55-0	4	µg/kg	<50	53	89	<50	141
Benzo(g,h,i)perylene	191-24-2	4	µg/kg	87	127	202	118	429
Dibenz(a,h)anthracene	53-70-3	4	µg/kg	<50	<50	<50	<50	161
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	<50	75	131	92	409



Analytical Results

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				T20C01	T20C02	T22C01	T23C01	T24C01
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-016	EP1210363-017	EP1210363-018	EP1210363-019	EP1210363-020
EP132B: Polynuclear Aromatic Hydrocarbons - Continued								
Coronene	191-07-1	5	µg/kg	<50	<50	60	<50	190
^ Sum of PAHs	----	4	µg/kg	1690	2620	4670	1870	7210
EP201: Carbamate Pesticides by LCMS								
Oxamyl	23135-22-0	0.02	mg/kg	----	----	----	<0.02	<0.02
Methomyl	16752-77-5	0.02	mg/kg	----	----	----	<0.02	<0.02
3-Hydroxy Carbofuran	16655-82-6	0.02	mg/kg	----	----	----	<0.02	<0.02
Aldicarb	116-06-3	0.02	mg/kg	----	----	----	<0.02	<0.02
Bendiocarb	22781-23-3	0.02	mg/kg	----	----	----	<0.02	<0.02
Thiodicarb	59669-26-0	0.02	mg/kg	----	----	----	<0.02	<0.02
Carbofuran	1563-66-2	0.02	mg/kg	----	----	----	<0.02	<0.02
Carbaryl	63-25-2	0.02	mg/kg	----	----	----	<0.02	<0.02
Methiocarb	2032-65-7	0.02	mg/kg	----	----	----	<0.02	<0.02
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	----	----	----	<0.04	<0.04
2,4-DB	94-82-6	0.02	mg/kg	----	----	----	<0.04	<0.04
Dicamba	1918-00-9	0.02	mg/kg	----	----	----	<0.04	<0.04
Mecoprop	93-65-2	0.02	mg/kg	----	----	----	<0.04	<0.04
MCPA	94-74-6	0.02	mg/kg	----	----	----	<0.04	<0.04
2,4-DP	120-36-5	0.02	mg/kg	----	----	----	<0.04	<0.04
2,4-D	94-75-7	0.02	mg/kg	----	----	----	<0.04	<0.04
Triclopyr	55335-06-3	0.02	mg/kg	----	----	----	<0.04	<0.04
2,4,5-TP (Silvex)	93-72-1	0.02	mg/kg	----	----	----	<0.04	<0.04
2,4,5-T	93-76-5	0.02	mg/kg	----	----	----	<0.04	<0.04
MCPB	94-81-5	0.02	mg/kg	----	----	----	<0.04	<0.04
Picloram	1918-02-1	0.02	mg/kg	----	----	----	<0.04	<0.04
Clopyralid	1702-17-6	0.02	mg/kg	----	----	----	<0.04	<0.04
Fluroxypyr	69377-81-7	0.02	mg/kg	----	----	----	<0.04	<0.04
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	----	----	----	114	112
Toluene-D8	2037-26-5	0.1	%	----	----	----	135	131
4-Bromofluorobenzene	460-00-4	0.1	%	----	----	----	116	99.8
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	81.6	86.6	78.5	100	78.6



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				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-016	EP1210363-017	EP1210363-018	EP1210363-019	EP1210363-020
EP075(SIM)S: Phenolic Compound Surrogates - Continued								
2-Chlorophenol-D4	93951-73-6	0.1	%	73.2	67.4	71.7	95.0	66.0
2,4,6-Tribromophenol	118-79-6	0.1	%	89.5	91.3	93.6	83.0	86.0
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	85.2	82.7	84.3	83.7	82.6
Anthracene-d10	1719-06-8	0.1	%	79.5	76.4	79.0	78.3	78.9
4-Terphenyl-d14	1718-51-0	0.1	%	78.9	74.6	78.7	73.5	78.2
EP080-SD: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	94.9	102	110	103	101
Toluene-D8	2037-26-5	0.1	%	87.0	103	122	111	107
4-Bromofluorobenzene	460-00-4	0.1	%	93.3	113	102	108	92.9
EP130S: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	48.8	36.0	51.5	40.4	62.4
EP131S: OC Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	19.9	25.4	27.6	21.6	25.0
EP131T: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	22.8	15.8	21.9	15.1	48.8
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	109	88.0	82.8	99.3	88.8
Anthracene-d10	1719-06-8	0.1	%	114	114	116	114	113
4-Terphenyl-d14	1718-51-0	0.1	%	117	115	116	111	113
EP201S: Carbamate Surrogate								
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	0.1	%	----	----	----	73.2	71.1
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	----	----	----	95.2	99.7



Analytical Results

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				TZC01	TZC02	T14A	T15A	T19A
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-021	EP1210363-022	EP1210363-023	EP1210363-024	EP1210363-025
EA029-A: pH Measurements								
pH OX (23B)	----	0.1	pH Unit	----	----	7.4	2.5	3.6
EA029-B: Acidity Trail								
Titrateable Peroxide Acidity (23G)	----	2	mole H+ / t	----	----	<2	963	305
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	----	----	8.6	8.3	8.4
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	----	----	<2	<2	<2
sulfidic - Titrateable Actual Acidity (s-23F)	----	0.02	% pyrite S	----	----	<0.02	<0.02	<0.02
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	----	0.810	0.939	0.882
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	----	505	586	550
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	----	----	5.96	2.47	3.28
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	----	----	1190	493	656
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	----	----	1.91	0.79	1.05
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	----	1.5	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S	----	----	<0.02	0.41	0.18
Net Acidity (acidity units)	----	10	mole H+ / t	----	----	<10	257	113
Liming Rate	----	1	kg CaCO3/t	----	----	<1	19	8
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	----	0.81	0.94	0.88
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	----	505	586	550
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	----	38	44	41
EA038: Acid Volatile Sulfur								
Acid Volatile Sulfur	----	0.001	%	----	----	0.012	0.007	0.019
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	43.3	70.2	<1.0	<1.0	<1.0
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	----	----	----
Asbestos Type	1332-21-4	0.1	--	-	-	----	----	----
Sample weight (dry)	----	0.01	g	205	197	----	----	----
APPROVED IDENTIFIER:	----	-	--	P.RENNIE	P.RENNIE	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

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				TZC01	TZC02	T14A	T15A	T19A
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
				EP1210363-021	EP1210363-022	EP1210363-023	EP1210363-024	EP1210363-025
Compound	CAS Number	LOR	Unit					
EA200Q: Asbestos Quantification (non-NATA)								
Weight Used for % Calculation	----	0.0010	kg	0.204	0.197	----	----	----
Asbestos Containing Material (ACM >7mm)	1332-21-4	0.01	%	<0.007	<0.008	----	----	----
Asbestos Fines and Fibrous Asbestos (<7mm)	1332-21-4	0.001	%	<0.005	<0.005	----	----	----
EG005T: Total Metals by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	10200	19700	----	----	----
Arsenic	7440-38-2	5	mg/kg	7	9	----	----	----
Boron	7440-42-8	50	mg/kg	50	110	----	----	----
Chromium	7440-47-3	2	mg/kg	31	61	----	----	----
Copper	7440-50-8	5	mg/kg	97	90	----	----	----
Iron	7439-89-6	50	mg/kg	24400	47600	----	----	----
Lead	7439-92-1	5	mg/kg	95	145	----	----	----
Manganese	7439-96-5	5	mg/kg	113	180	----	----	----
Molybdenum	7439-98-7	2	mg/kg	3	2	----	----	----
Nickel	7440-02-0	2	mg/kg	12	16	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	----	----	----
Tin	7440-31-5	5	mg/kg	<5	6	----	----	----
Zinc	7440-66-6	5	mg/kg	492	384	----	----	----
Magnesium	7439-95-4	50	mg/kg	3640	8690	----	----	----
EG020T: Total Metals by ICP-MS								
Cadmium	7440-43-9	0.1	mg/kg	0.9	0.4	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	----	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	1	mg/kg	2	2	----	----	----
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	<20	30	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	----	0.1	mg/kg	<0.1	<0.1	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	----	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	----	----	----



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				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-021	EP1210363-022	EP1210363-023	EP1210363-024	EP1210363-025
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser - Continued								
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	1190	2190	----	----	----
EK062: Total Nitrogen as N (TKN + NOx)								
Total Nitrogen as N	----	20	mg/kg	1190	2190	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	189	586	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	----	0.1	mg/kg	0.1	2.3	----	----	----
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	1.14	3.16	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
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	----	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	----	----	----
EP074D: Fumigants								



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				TZC01	TZC02	T14A	T15A	T19A
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210363-021	EP1210363-022	EP1210363-023	EP1210363-024	EP1210363-025
EP074D: Fumigants - Continued								
2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg	<5	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg	<5	<5	----	----	----
Chloroethane	75-00-3	5	mg/kg	<5	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	----	----	----
1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,1,2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1,4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1,4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,1,2,2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	----	----	----



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Compound	CAS Number	LOR	Unit	EP1210363-021	EP1210363-022	EP1210363-023	EP1210363-024	EP1210363-025
EP074E: Halogenated Aliphatic Compounds - Continued								
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	----	----	----
1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	<5	<5	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	----	----	----
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
>C10 - C16 Fraction	----	3	mg/kg	<3	<3	----	----	----
>C16 - C34 Fraction	----	3	mg/kg	<3	<3	----	----	----



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Compound	CAS Number	LOR	Unit	EP1210363-021	EP1210363-022	EP1210363-023	EP1210363-024	EP1210363-025
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft - Continued								
>C34 - C40 Fraction	----	5	mg/kg	<5	<5	----	----	----
>C10 - C40 Fraction (sum)	----	3	mg/kg	<3	<3	----	----	----
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	<3	<3	----	----	----
C10 - C14 Fraction	----	3	mg/kg	4	<3	----	----	----
C15 - C28 Fraction	----	3	mg/kg	169	19	----	----	----
C29 - C36 Fraction	----	5	mg/kg	174	23	----	----	----
^ C10 - C36 Fraction (sum)	----	3	mg/kg	347	42	----	----	----
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	----	3	mg/kg	<3	<3	----	----	----
EP080-SD: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	----	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	<0.2	<0.2	----	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	<0.2	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	----	----
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	10	µg/kg	<31	<10	----	----	----
Carbophenothion	786-19-6	10	µg/kg	<31	<10	----	----	----
Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<31.0	<10.0	----	----	----
Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<31	<10	----	----	----
Chlorpyrifos	2921-88-2	10	µg/kg	<31	<10	----	----	----
Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<31	<10	----	----	----
Demeton-S-methyl	919-86-8	10	µg/kg	<31	<10	----	----	----
Diazinon	333-41-5	10	µg/kg	<31	<10	----	----	----
Dichlorvos	62-73-7	10	µg/kg	<31	<10	----	----	----
Dimethoate	60-51-5	10	µg/kg	<31	<10	----	----	----
Ethion	563-12-2	10	µg/kg	<31	<10	----	----	----
Fenamiphos	22224-92-6	10	µg/kg	<31	<10	----	----	----
Fenthion	55-38-9	10	µg/kg	<31	<10	----	----	----
Malathion	121-75-5	10	µg/kg	<31	<10	----	----	----



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Compound	CAS Number	LOR	Unit	EP1210363-021	EP1210363-022	EP1210363-023	EP1210363-024	EP1210363-025
EP130A: Organophosphorus Pesticides (Ultra-trace) - Continued								
Azinphos Methyl	86-50-0	10	µg/kg	<31	<10	----	----	----
Monocrotophos	6923-22-4	10	µg/kg	<31	<10	----	----	----
Parathion	56-38-2	10	µg/kg	<31	<10	----	----	----
Parathion-methyl	298-00-0	10	µg/kg	<31	<10	----	----	----
Pirimphos-ethyl	23505-41-1	10	µg/kg	<31	<10	----	----	----
Prothiofos	34643-46-4	10	µg/kg	<31	<10	----	----	----
EP131A: Organochlorine Pesticides								
Aldrin	309-00-2	0.50	µg/kg	<0.50	<0.50	----	----	----
alpha-BHC	319-84-6	0.50	µg/kg	<0.50	<0.50	----	----	----
beta-BHC	319-85-7	0.50	µg/kg	<0.50	<0.50	----	----	----
delta-BHC	319-86-8	0.50	µg/kg	<0.50	<0.50	----	----	----
4.4'-DDD	72-54-8	0.50	µg/kg	7.29	0.89	----	----	----
4.4'-DDE	72-55-9	0.50	µg/kg	16.5	<0.50	----	----	----
4.4'-DDT	50-29-3	0.50	µg/kg	<0.50	<0.50	----	----	----
^ Sum of DDD + DDE + DDT	----	0.50	µg/kg	23.8	0.89	----	----	----
Dieldrin	60-57-1	0.50	µg/kg	<0.50	<0.50	----	----	----
alpha-Endosulfan	959-98-8	0.50	µg/kg	<0.50	<0.50	----	----	----
beta-Endosulfan	33213-65-9	0.50	µg/kg	<0.50	<0.50	----	----	----
Endosulfan sulfate	1031-07-8	0.50	µg/kg	<0.50	<0.50	----	----	----
^ Endosulfan (sum)	115-29-7	0.50	µg/kg	<0.50	<0.50	----	----	----
Endrin	72-20-8	0.50	µg/kg	<0.50	<0.50	----	----	----
Endrin aldehyde	7421-93-4	0.50	µg/kg	<0.50	<0.50	----	----	----
Endrin ketone	53494-70-5	0.50	µg/kg	<0.50	<0.50	----	----	----
Heptachlor	76-44-8	0.50	µg/kg	<0.50	<0.50	----	----	----
Heptachlor epoxide	1024-57-3	0.50	µg/kg	<0.50	<0.50	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg	<0.50	<0.50	----	----	----
gamma-BHC	58-89-9	0.25	µg/kg	<0.25	<0.25	----	----	----
Methoxychlor	72-43-5	0.50	µg/kg	<0.50	<0.50	----	----	----
cis-Chlordane	5103-71-9	0.25	µg/kg	<0.25	<0.25	----	----	----
trans-Chlordane	5103-74-2	0.25	µg/kg	<0.25	<0.25	----	----	----
^ Total Chlordane (sum)	----	0.25	µg/kg	<0.25	<0.25	----	----	----
Oxychlordane	27304-13-8	0.50	µg/kg	<0.50	<0.50	----	----	----

EP131B: Polychlorinated Biphenyls (as Aroclors)



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Compound	CAS Number	LOR	Unit	EP1210363-021	EP1210363-022	EP1210363-023	EP1210363-024	EP1210363-025
EP131B: Polychlorinated Biphenyls (as Aroclors) - Continued								
^ Total Polychlorinated biphenyls	----	5.0	µg/kg	<5.0	<5.0	----	----	----
Aroclor 1016	12674-11-2	5.0	µg/kg	<5.0	<5.0	----	----	----
Aroclor 1221	11104-28-2	5.0	µg/kg	<5.0	<5.0	----	----	----
Aroclor 1232	11141-16-5	5.0	µg/kg	<5.0	<5.0	----	----	----
Aroclor 1242	53469-21-9	5.0	µg/kg	<5.0	<5.0	----	----	----
Aroclor 1248	12672-29-6	5.0	µg/kg	<5.0	<5.0	----	----	----
Aroclor 1254	11097-69-1	5.0	µg/kg	<5.0	<5.0	----	----	----
Aroclor 1260	11096-82-5	5.0	µg/kg	<5.0	<5.0	----	----	----
EP132B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	5	µg/kg	260	<25	----	----	----
2-Methylnaphthalene	91-57-6	5	µg/kg	153	<25	----	----	----
Acenaphthylene	208-96-8	4	µg/kg	502	26	----	----	----
Acenaphthene	83-32-9	4	µg/kg	55	<25	----	----	----
Fluorene	86-73-7	4	µg/kg	102	<25	----	----	----
Phenanthrene	85-01-8	4	µg/kg	350	<25	----	----	----
Anthracene	120-12-7	4	µg/kg	263	<25	----	----	----
Fluoranthene	206-44-0	4	µg/kg	885	37	----	----	----
Pyrene	129-00-0	4	µg/kg	3170	53	----	----	----
Benz(a)anthracene	56-55-3	4	µg/kg	730	<25	----	----	----
Chrysene	218-01-9	4	µg/kg	820	30	----	----	----
Benzo(b)fluoranthene	205-99-2	4	µg/kg	1050	35	----	----	----
Benzo(k)fluoranthene	207-08-9	4	µg/kg	502	<25	----	----	----
Benzo(e)pyrene	192-97-2	4	µg/kg	822	<25	----	----	----
Benzo(a)pyrene	50-32-8	4	µg/kg	1400	35	----	----	----
Perylene	198-55-0	4	µg/kg	206	<25	----	----	----
Benzo(g,h,i)perylene	191-24-2	4	µg/kg	649	<25	----	----	----
Dibenz(a,h)anthracene	53-70-3	4	µg/kg	189	<25	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	482	<25	----	----	----
Coronene	191-07-1	5	µg/kg	140	<25	----	----	----
^ Sum of PAHs	----	4	µg/kg	12700	216	----	----	----
EP201: Carbamate Pesticides by LCMS								
Oxamyl	23135-22-0	0.02	mg/kg	<0.02	<0.02	----	----	----
Methomyl	16752-77-5	0.02	mg/kg	<0.02	<0.02	----	----	----



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Compound	CAS Number	LOR	Unit	EP1210363-021	EP1210363-022	EP1210363-023	EP1210363-024	EP1210363-025
EP201: Carbamate Pesticides by LCMS - Continued								
3-Hydroxy Carbofuran	16655-82-6	0.02	mg/kg	<0.02	<0.02	----	----	----
Aldicarb	116-06-3	0.02	mg/kg	<0.02	<0.02	----	----	----
Bendiocarb	22781-23-3	0.02	mg/kg	<0.02	<0.02	----	----	----
Thiodicarb	59669-26-0	0.02	mg/kg	<0.02	<0.02	----	----	----
Carbofuran	1563-66-2	0.02	mg/kg	<0.02	<0.02	----	----	----
Carbaryl	63-25-2	0.02	mg/kg	<0.02	<0.02	----	----	----
Methiocarb	2032-65-7	0.02	mg/kg	<0.02	<0.02	----	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.04	<0.04	----	----	----
2,4-DB	94-82-6	0.02	mg/kg	<0.04	<0.04	----	----	----
Dicamba	1918-00-9	0.02	mg/kg	<0.04	<0.04	----	----	----
Mecoprop	93-65-2	0.02	mg/kg	<0.04	<0.04	----	----	----
MCPA	94-74-6	0.02	mg/kg	<0.04	<0.04	----	----	----
2,4-DP	120-36-5	0.02	mg/kg	<0.04	<0.04	----	----	----
2,4-D	94-75-7	0.02	mg/kg	<0.04	<0.04	----	----	----
Triclopyr	55335-06-3	0.02	mg/kg	<0.04	<0.04	----	----	----
2,4,5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.04	<0.04	----	----	----
2,4,5-T	93-76-5	0.02	mg/kg	<0.04	<0.04	----	----	----
MCPB	94-81-5	0.02	mg/kg	<0.04	<0.04	----	----	----
Picloram	1918-02-1	0.02	mg/kg	<0.04	<0.04	----	----	----
Clopyralid	1702-17-6	0.02	mg/kg	<0.04	<0.04	----	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg	<0.04	<0.04	----	----	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	85.2	94.8	----	----	----
Toluene-D8	2037-26-5	0.1	%	95.7	112	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	82.7	99.3	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	87.3	89.8	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	77.0	78.4	----	----	----
2,4,6-Tribromophenol	118-79-6	0.1	%	57.1	57.4	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	82.1	82.6	----	----	----
Anthracene-d10	1719-06-8	0.1	%	82.0	92.8	----	----	----



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Compound	CAS Number	LOR	Unit	EP1210363-021	EP1210363-022	EP1210363-023	EP1210363-024	EP1210363-025
EP075(SIM)T: PAH Surrogates - Continued								
4-Terphenyl-d14	1718-51-0	0.1	%	67.0	73.5	----	----	----
EP080-SD: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	82.8	85.7	----	----	----
Toluene-D8	2037-26-5	0.1	%	94.6	91.9	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	83.7	92.9	----	----	----
EP130S: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	33.6	39.1	----	----	----
EP131S: OC Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	51.1	38.0	----	----	----
EP131T: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	65.6	47.0	----	----	----
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	102	81.8	----	----	----
Anthracene-d10	1719-06-8	0.1	%	109	111	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	113	103	----	----	----
EP201S: Carbamate Surrogate								
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	0.1	%	86.3	83.1	----	----	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	99.4	91.2	----	----	----



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				T20A	TZA01	----	----	----
				11-DEC-2012 15:00	11-DEC-2012 15:00	----	----	----
Compound	CAS Number	LOR	Unit	EP1210363-026	EP1210363-027	----	----	----
EA029-A: pH Measurements								
pH OX (23B)	----	0.1	pH Unit	3.6	3.2	----	----	----
EA029-B: Acidity Trail								
Titrateable Peroxide Acidity (23G)	----	2	mole H+ / t	346	380	----	----	----
EA033-A: Actual Acidity								
pH KCl (23A)	----	0.1	pH Unit	8.3	8.3	----	----	----
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	----	----	----
sulfidic - Titrateable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	----	----	----
EA033-B: Potential Acidity								
Chromium Reducible Sulfur (22B)	----	0.005	% S	1.06	0.985	----	----	----
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	658	614	----	----	----
EA033-C: Acid Neutralising Capacity								
Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	2.89	2.35	----	----	----
acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	577	470	----	----	----
sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	0.93	0.75	----	----	----
EA033-E: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	1.5	1.5	----	----	----
Net Acidity (sulfur units)	----	0.02	% S	0.44	0.48	----	----	----
Net Acidity (acidity units)	----	10	mole H+ / t	273	301	----	----	----
Liming Rate	----	1	kg CaCO3/t	21	23	----	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	1.06	0.98	----	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	658	614	----	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	49	46	----	----	----
EA038: Acid Volatile Sulfur								
Acid Volatile Sulfur	----	0.001	%	0.020	0.034	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	<1.0	<1.0	----	----	----



Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	T10C01 - 11-DEC-2012 15:00	Mid grey clay soil with plenty of shell debris plus several small friable asbestos fibre bundles approx 5 x1 x 1mm
EA200: Description	T12C01 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus a trace of vegetation
EA200: Description	T14C01 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus a trace of vegetation
EA200: Description	T14C02 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus several small friable asbestos fibre bundles approx 2 x 0.5 x 0.5mm
EA200: Description	T14C03 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus one small friable asbestos fibre bundle approx 3 x1 x 0.5mm
EA200: Description	T15C01 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus one small friable asbestos fibre bundle approx 3 x1 x 0.5mm
EA200: Description	T15C02 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus several small friable asbestos fibre bundles approx 5 x1 x 0.5mm
EA200: Description	T16C01 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus a trace of vegetation
EA200: Description	T17C01 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus a trace of vegetation
EA200: Description	T17C02 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus a trace of vegetation
EA200: Description	T18C01 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus a trace of vegetation
EA200: Description	T18C02 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus a trace of vegetation
EA200: Description	T18C03 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus a trace of vegetation
EA200: Description	T19C01 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus a trace of vegetation
EA200: Description	T19C02 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus a trace of vegetation
EA200: Description	T20C01 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus a trace of vegetation
EA200: Description	T20C02 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus a trace of vegetation
EA200: Description	T22C01 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus a trace of vegetation
EA200: Description	T23C01 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus a trace of vegetation
EA200: Description	T24C01 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus two small friable asbestos fibre bundles approx 3 x1 x 0.5mm
EA200: Description	TZC01 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus a trace of vegetation
EA200: Description	TZC02 - 11-DEC-2012 15:00	Mid grey clay soil with some shell debris plus a trace of vegetation



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	65	135
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	70.6	120.8
2-Chlorophenol-D4	93951-73-6	66.9	114.4
2,4,6-Tribromophenol	118-79-6	38.7	121
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	80.9	122.1
Anthracene-d10	1719-06-8	76.3	116.1
4-Terphenyl-d14	1718-51-0	58.7	128.3
EP080-SD: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	67	137
Toluene-D8	2037-26-5	74	134
4-Bromofluorobenzene	460-00-4	73	137
EP130S: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	101
EP131S: OC Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	136
EP131T: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	164
EP132T: Base/Neutral Extractable Surrogates			
2-Fluorobiphenyl	321-60-8	30	115
Anthracene-d10	1719-06-8	27	133
4-Terphenyl-d14	1718-51-0	18	137
EP201S: Carbamate Surrogate			
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	59	137
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2,4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

QUALITY CONTROL REPORT

Work Order	: EP1210363	Page	: 1 of 43
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: JOSH ABBOTT	Contact	: Scott James
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: josh.abbott@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: 112147	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Burswood Stadium	Date Samples Received	: 12-DEC-2012
C-O-C number	: ----	Issue Date	: 08-JAN-2013
Sampler	: JA & AJ	No. of samples received	: 27
Order number	: ----	No. of samples analysed	: 27
Quote number	: EP/689/12 V4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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



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.

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



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 Laboratory 825

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 compliance with
 ISO/IEC 17025.

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Agnes Szilagyi	Senior Organic Chemist	Perth Organics
Benjamin Nicholson	Metals Chemist	Perth Inorganics
Canhuang Ke	Metals Instrument Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics
Hamish Murray	Laboratory Technician	Newcastle
Kim McCabe	Senior Inorganic Chemist	Stafford Minerals - AY
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Leanne Carey	Acid Sulfate Soils Supervisor	Perth ASS
Pabi Subba	Senior Organic Chemist	Sydney Organics
Peter Rennie	Team Leader - Asbestos	Newcastle
Rassem Ayoubi	Senior Organic Chemist	Perth Inorganics
		Perth Organics
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils



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 (%)
EA029-A: pH Measurements (QC Lot: 2646730)									
EP1210363-023	T14A	EA029-TPA: pH OX (23B)	----	0.1	pH Unit	7.4	7.5	1.5	0% - 20%
EA029-B: Acidity Trail (QC Lot: 2646730)									
EP1210363-023	T14A	EA029-TPA: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	<2	0.0	No Limit
EA033-A: Actual Acidity (QC Lot: 2646729)									
EP1210363-023	T14A	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	8.6	8.6	0.0	0% - 20%
EA033-B: Potential Acidity (QC Lot: 2646729)									
EP1210363-023	T14A	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.810	0.816	0.7	0% - 20%
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	505	509	0.8	0% - 20%
EA033-C: Acid Neutralising Capacity (QC Lot: 2646729)									
EP1210363-023	T14A	EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	5.96	5.98	0.3	0% - 20%
		EA033: sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	1.91	1.92	0.5	0% - 20%
		EA033: acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	1190	1200	0.4	0% - 20%
EA033-E: Acid Base Accounting (QC Lot: 2646729)									
EP1210363-023	T14A	EA033: ANC Fineness Factor	----	0.5	-	1.5	1.5	0.0	No Limit
		EA033: Net Acidity (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA033: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.81	0.82	1.2	0% - 20%
		EA033: Liming Rate	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA033: Liming Rate excluding ANC	----	1	kg CaCO3/t	38	38	0.0	0% - 20%
		EA033: Net Acidity (acidity units)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA033: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	505	509	0.8	0% - 20%		
EA038: Acid Volatile Sulfur (QC Lot: 2672395)									
EP1210363-023	T14A	EA038: Acid Volatile Sulfur	----	0.001	%	0.012	0.012	0.0	0% - 50%
EA055: Moisture Content (QC Lot: 2646881)									
EP1210363-001	T10C01	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	54.0	54.9	1.6	0% - 20%
EP1210363-010	T17C02	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	66.6	67.3	1.1	0% - 20%
EA055: Moisture Content (QC Lot: 2646882)									
EP1210363-021	TZC01	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	43.3	46.2	6.5	0% - 20%
EA055: Moisture Content (QC Lot: 2651007)									
EP1210363-023	T14A	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	<1.0	<1.0	0.0	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 (%)
EG005T: Total Metals by ICP-AES (QC Lot: 2651070)									
EP1210363-001	T10C01	EG005T: Chromium	7440-47-3	2	mg/kg	40	41	4.6	0% - 20%
		EG005T: Molybdenum	7439-98-7	2	mg/kg	8	7	13.7	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	13	13	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	12	20.3	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	70	83	16.1	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	91	107	16.4	0% - 20%
		EG005T: Manganese	7439-96-5	5	mg/kg	219	197	10.5	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	8	51.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	289	328	12.5	0% - 20%
		EG005T: Aluminium	7429-90-5	50	mg/kg	14200	14200	0.3	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	80	80	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	42000	40000	5.0	0% - 20%
EG005T: Magnesium	7439-95-4	50	mg/kg	6780	6800	0.4	0% - 20%		
EP1210363-011	T18C01	EG005T: Chromium	7440-47-3	2	mg/kg	57	56	0.0	0% - 20%
		EG005T: Molybdenum	7439-98-7	2	mg/kg	2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	16	15	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	10	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	79	78	1.5	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	129	128	0.9	0% - 20%
		EG005T: Manganese	7439-96-5	5	mg/kg	186	188	1.0	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	6	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	365	369	1.0	0% - 20%
		EG005T: Aluminium	7429-90-5	50	mg/kg	17800	17700	0.6	0% - 20%
		EG005T: Boron	7440-42-8	50	mg/kg	100	100	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	45000	45400	0.8	0% - 20%
EG005T: Magnesium	7439-95-4	50	mg/kg	8060	8080	0.3	0% - 20%		
EG005T: Total Metals by ICP-AES (QC Lot: 2651072)									
EP1210363-021	TZC01	EG005T: Chromium	7440-47-3	2	mg/kg	31	30	3.5	0% - 50%
		EG005T: Molybdenum	7439-98-7	2	mg/kg	3	3	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	12	13	9.5	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	5	32.1	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	97	96	1.8	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	95	93	2.5	0% - 50%
		EG005T: Manganese	7439-96-5	5	mg/kg	113	111	2.0	0% - 20%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	492	495	0.6	0% - 20%
		EG005T: Aluminium	7429-90-5	50	mg/kg	10200	9760	4.6	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 (%)
EG005T: Total Metals by ICP-AES (QC Lot: 2651072) - continued									
EP1210363-021	TZC01	EG005T: Boron	7440-42-8	50	mg/kg	50	<50	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	24400	24200	1.1	0% - 20%
		EG005T: Magnesium	7439-95-4	50	mg/kg	3640	3450	5.5	0% - 20%
EG020T: Total Metals by ICP-MS (QC Lot: 2652115)									
EP1210363-001	T10C01	EG020Y-T: Cadmium	7440-43-9	0.1	mg/kg	0.7	0.7	0.0	No Limit
EP1210363-011	T18C01	EG020Y-T: Cadmium	7440-43-9	0.1	mg/kg	0.4	0.4	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 2652116)									
EP1210363-021	TZC01	EG020Y-T: Cadmium	7440-43-9	0.1	mg/kg	0.9	0.6	45.7	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2651071)									
EP1210363-001	T10C01	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	0.2	78.7	No Limit
EP1210363-011	T18C01	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.2	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2651073)									
EP1210363-021	TZC01	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	0.2	0.0	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 2646874)									
EP1210363-001	T10C01	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EP1210363-011	T18C01	EK026SF: Total Cyanide	57-12-5	1	mg/kg	2	2	0.0	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 2646875)									
EP1210363-021	TZC01	EK026SF: Total Cyanide	57-12-5	1	mg/kg	2	2	0.0	No Limit
EK055: Ammonia as N (QC Lot: 2650998)									
EP1210363-001	T10C01	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EP1210395-017	Anonymous	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	100	131	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 2647996)									
EP1210363-001	T10C01	EK057G: Nitrite as N (Sol.)	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 2647997)									
EP1210363-001	T10C01	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 2651010)									
EP1210363-001	T10C01	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	1560	1590	2.3	0% - 20%
EP1210426-011	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	<20	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 2651011)									
EP1210363-001	T10C01	EK067G: Total Phosphorus as P	----	2	mg/kg	309	294	4.8	0% - 20%
EP1210426-011	Anonymous	EK067G: Total Phosphorus as P	----	2	mg/kg	4	3	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 2647998)									
EP1210363-001	T10C01	EK071G: Reactive Phosphorus as P	----	0.1	mg/kg	0.4	0.5	0.0	No Limit
EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 2664059)									
EP1210363-001	T10C01	EP003: Total Organic Carbon	----	0.02	%	3.16	3.19	1.2	0% - 20%
EP1210363-011	T18C01	EP003: Total Organic Carbon	----	0.02	%	3.04	3.15	3.5	0% - 20%
EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 2664060)									
EP1210363-021	TZC01	EP003: Total Organic Carbon	----	0.02	%	1.14	1.11	3.4	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 (%)	
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2655588)										
EP1210363-009	T17C01	EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP074B: Oxygenated Compounds (QC Lot: 2655588)										
EP1210363-009	T17C01	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit	
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit	
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit	
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit	
EP074C: Sulfonated Compounds (QC Lot: 2655588)										
EP1210363-009	T17C01	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
EP074D: Fumigants (QC Lot: 2655588)										
EP1210363-009	T17C01	EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2655588)										
EP1210363-009	T17C01	EP074: 1,1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: trans-1,2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: 1,1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: cis-1,2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: 1,1,1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: 1,1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: 1,2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	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 (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2655588) - continued									
EP1210363-009	T17C01	EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit		
EP074F: Halogenated Aromatic Compounds (QC Lot: 2655588)									
EP1210363-009	T17C01	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074G: Trihalomethanes (QC Lot: 2655588)							
EP1210363-009	T17C01	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 2655588)									
EP1210363-009	T17C01	EP074: Naphthalene	91-20-3	5	mg/kg	<5	<5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 2654048)									
EP1210363-021	TZC01	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	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)A: Phenolic Compounds (QC Lot: 2654048) - continued									
EP1210363-021	TZC01	EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QC Lot: 2652217)									
EP1210303-001	Anonymous	EP071-SD: C10 - C14 Fraction	----	3	mg/kg	<3	<3	0.0	No Limit
		EP071-SD: C15 - C28 Fraction	----	3	mg/kg	37	39	5.7	0% - 50%
		EP071-SD: C29 - C36 Fraction	----	5	mg/kg	38	40	5.6	No Limit
EP1210303-011	Anonymous	EP071-SD: C10 - C14 Fraction	----	3	mg/kg	<3	<3	0.0	No Limit
		EP071-SD: C15 - C28 Fraction	----	3	mg/kg	47	53	11.4	0% - 50%
		EP071-SD: C29 - C36 Fraction	----	5	mg/kg	58	57	0.0	0% - 50%
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QC Lot: 2652219)									
EP1210363-002	T12C01	EP071-SD: C10 - C14 Fraction	----	3	mg/kg	<3	<3	0.0	No Limit
		EP071-SD: C15 - C28 Fraction	----	3	mg/kg	59	58	2.5	0% - 50%
		EP071-SD: C29 - C36 Fraction	----	5	mg/kg	76	80	4.4	0% - 50%
EP1210363-012	T18C02	EP071-SD: C10 - C14 Fraction	----	3	mg/kg	5	4	0.0	No Limit
		EP071-SD: C15 - C28 Fraction	----	3	mg/kg	94	108	14.1	0% - 20%
		EP071-SD: C29 - C36 Fraction	----	5	mg/kg	98	96	2.3	0% - 50%
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QC Lot: 2655583)									
EP1210363-002	T12C01	EP080-SD: C6 - C9 Fraction	----	3	mg/kg	<3	<3	0.0	No Limit
EP1210363-011	T18C01	EP080-SD: C6 - C9 Fraction	----	3	mg/kg	<3	<3	0.0	No Limit
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QC Lot: 2655589)									
EP1210363-009	T17C01	EP080-SD: C6 - C9 Fraction	----	3	mg/kg	<3	<3	0.0	No Limit
EP080-SD: BTEXN (QC Lot: 2655583)									
EP1210363-002	T12C01	EP080-SD: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: meta- & para-Xylene	108-38-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
			106-42-3						
	EP080-SD: ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
EP1210363-011	T18C01	EP080-SD: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: meta- & para-Xylene	108-38-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
			106-42-3						
	EP080-SD: ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	<0.2	0.0	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-SD: BTEXN (QC Lot: 2655589)									
EP1210363-009	T17C01	EP080-SD: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: meta- & para-Xylene	108-38-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
			106-42-3						
	EP080-SD: ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
EP130A: Organophosphorus Pesticides (Ultra-trace) (QC Lot: 2652220)									
EP1210303-001	Anonymous	EP130: Bromophos-ethyl	4824-78-6	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Carbophenothion	786-19-6	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Chlorpyrifos	2921-88-2	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Demeton-S-methyl	919-86-8	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Diazinon	333-41-5	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Dichlorvos	62-73-7	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Dimethoate	60-51-5	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Ethion	563-12-2	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Fenamiphos	22224-92-6	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Fenthion	55-38-9	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Malathion	121-75-5	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Azinphos Methyl	86-50-0	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Monocrotophos	6923-22-4	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Parathion	56-38-2	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Parathion-methyl	298-00-0	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Pirimiphos-ethyl	23505-41-1	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Prothiofos	34643-46-4	10	µg/kg	<10	<10	0.0	No Limit
EP130: Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<10.0	<10.0	0.0	No Limit		
EP1210303-011	Anonymous	EP130: Bromophos-ethyl	4824-78-6	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Carbophenothion	786-19-6	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Chlorpyrifos	2921-88-2	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Demeton-S-methyl	919-86-8	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Diazinon	333-41-5	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Dichlorvos	62-73-7	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Dimethoate	60-51-5	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Ethion	563-12-2	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Fenamiphos	22224-92-6	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Fenthion	55-38-9	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Malathion	121-75-5	10	µg/kg	<10	<10	0.0	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 (%)
EP130A: Organophosphorus Pesticides (Ultra-trace) (QC Lot: 2652220) - continued									
EP1210303-011	Anonymous	EP130: Azinphos Methyl	86-50-0	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Monocrotophos	6923-22-4	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Parathion	56-38-2	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Parathion-methyl	298-00-0	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Pirimphos-ethyl	23505-41-1	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Prothiofos	34643-46-4	10	µg/kg	<10	<10	0.0	No Limit
		EP130: Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<10.0	<10.0	0.0	No Limit
EP130A: Organophosphorus Pesticides (Ultra-trace) (QC Lot: 2652223)									
EP1210363-001	T10C01	EP130: Bromophos-ethyl	4824-78-6	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Carbophenothion	786-19-6	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Chlorpyrifos	2921-88-2	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Demeton-S-methyl	919-86-8	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Diazinon	333-41-5	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Dichlorvos	62-73-7	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Dimethoate	60-51-5	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Ethion	563-12-2	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Fenamiphos	22224-92-6	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Fenthion	55-38-9	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Malathion	121-75-5	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Azinphos Methyl	86-50-0	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Monocrotophos	6923-22-4	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Parathion	56-38-2	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Parathion-methyl	298-00-0	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Pirimphos-ethyl	23505-41-1	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Prothiofos	34643-46-4	10	µg/kg	<125	<125	0.0	No Limit
		EP130: Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<125	<125	0.0	No Limit
EP1210363-012	T18C02	EP130: Bromophos-ethyl	4824-78-6	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Carbophenothion	786-19-6	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Chlorpyrifos	2921-88-2	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Demeton-S-methyl	919-86-8	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Diazinon	333-41-5	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Dichlorvos	62-73-7	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Dimethoate	60-51-5	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Ethion	563-12-2	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Fenamiphos	22224-92-6	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Fenthion	55-38-9	10	µg/kg	<12	<12	0.0	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 (%)
EP130A: Organophosphorus Pesticides (Ultra-trace) (QC Lot: 2652223) - continued									
EP1210363-012	T18C02	EP130: Malathion	121-75-5	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Azinphos Methyl	86-50-0	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Monocrotophos	6923-22-4	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Parathion	56-38-2	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Parathion-methyl	298-00-0	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Pirimphos-ethyl	23505-41-1	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Prothiofos	34643-46-4	10	µg/kg	<12	<12	0.0	No Limit
		EP130: Chlorfenvinphos (E)	18708-86-6	10.0	µg/kg	<12.0	<12.0	0.0	No Limit
EP131A: Organochlorine Pesticides (QC Lot: 2652221)									
EP1210303-001	Anonymous	EP131A: gamma-BHC	58-89-9	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: cis-Chlordane	5103-71-9	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: trans-Chlordane	5103-74-2	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: Total Chlordane (sum)	----	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: Aldrin	309-00-2	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: alpha-BHC	319-84-6	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: beta-BHC	319-85-7	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: delta-BHC	319-86-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: 4,4'-DDD	72-54-8	0.50	µg/kg	0.98	0.78	22.8	No Limit
		EP131A: 4,4'-DDE	72-55-9	0.50	µg/kg	2.30	1.35	52.0	No Limit
		EP131A: 4,4'-DDT	50-29-3	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Sum of DDD + DDE + DDT	----	0.50	µg/kg	3.28	2.13	42.5	No Limit
		EP131A: Dieldrin	60-57-1	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: alpha-Endosulfan	959-98-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: beta-Endosulfan	33213-65-9	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endosulfan sulfate	1031-07-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endosulfan (sum)	115-29-7	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin	72-20-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin aldehyde	7421-93-4	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin ketone	53494-70-5	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Heptachlor	76-44-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Heptachlor epoxide	1024-57-3	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
EP131A: Methoxychlor	72-43-5	0.50	µg/kg	<0.50	<0.50	0.0	No Limit		
EP1210303-011	Anonymous	EP131A: gamma-BHC	58-89-9	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: cis-Chlordane	5103-71-9	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: trans-Chlordane	5103-74-2	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: Total Chlordane (sum)	----	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: Aldrin	309-00-2	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: alpha-BHC	319-84-6	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: beta-BHC	319-85-7	0.50	µg/kg	<0.50	<0.50	0.0	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 (%)
EP131A: Organochlorine Pesticides (QC Lot: 2652221) - continued									
EP1210303-011	Anonymous	EP131A: delta-BHC	319-86-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: 4.4'-DDD	72-54-8	0.50	µg/kg	1.36	1.04	26.9	No Limit
		EP131A: 4.4'-DDE	72-55-9	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: 4.4'-DDT	50-29-3	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Sum of DDD + DDE + DDT	----	0.50	µg/kg	1.36	1.04	26.7	No Limit
		EP131A: Dieldrin	60-57-1	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: alpha-Endosulfan	959-98-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: beta-Endosulfan	33213-65-9	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endosulfan sulfate	1031-07-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endosulfan (sum)	115-29-7	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin	72-20-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin aldehyde	7421-93-4	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin ketone	53494-70-5	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Heptachlor	76-44-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Heptachlor epoxide	1024-57-3	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
EP131A: Methoxychlor	72-43-5	0.50	µg/kg	<0.50	<0.50	0.0	No Limit		
EP131A: Organochlorine Pesticides (QC Lot: 2652224)									
EP1210363-001	T10C01	EP131A: gamma-BHC	58-89-9	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: cis-Chlordane	5103-71-9	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: trans-Chlordane	5103-74-2	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: Total Chlordane (sum)	----	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: Aldrin	309-00-2	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: alpha-BHC	319-84-6	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: beta-BHC	319-85-7	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: delta-BHC	319-86-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: 4.4'-DDD	72-54-8	0.50	µg/kg	9.11	9.98	9.1	0% - 50%
		EP131A: 4.4'-DDE	72-55-9	0.50	µg/kg	25.1	21.0	17.8	0% - 20%
		EP131A: 4.4'-DDT	50-29-3	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Sum of DDD + DDE + DDT	----	0.50	µg/kg	34.2	31.0	9.9	0% - 20%
		EP131A: Dieldrin	60-57-1	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: alpha-Endosulfan	959-98-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: beta-Endosulfan	33213-65-9	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endosulfan sulfate	1031-07-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endosulfan (sum)	115-29-7	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin	72-20-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin aldehyde	7421-93-4	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin ketone	53494-70-5	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Heptachlor	76-44-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Heptachlor epoxide	1024-57-3	0.50	µg/kg	<0.50	<0.50	0.0	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 (%)
EP131A: Organochlorine Pesticides (QC Lot: 2652224) - continued									
EP1210363-001	T10C01	EP131A: Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Methoxychlor	72-43-5	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
EP1210363-012	T18C02	EP131A: gamma-BHC	58-89-9	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: cis-Chlordane	5103-71-9	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: trans-Chlordane	5103-74-2	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: Total Chlordane (sum)	----	0.25	µg/kg	<0.25	<0.25	0.0	No Limit
		EP131A: Aldrin	309-00-2	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: alpha-BHC	319-84-6	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: beta-BHC	319-85-7	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: delta-BHC	319-86-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: 4,4'-DDD	72-54-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: 4,4'-DDE	72-55-9	0.50	µg/kg	2.63	2.32	12.7	No Limit
		EP131A: 4,4'-DDT	50-29-3	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Sum of DDD + DDE + DDT	----	0.50	µg/kg	2.63	2.32	12.5	No Limit
		EP131A: Dieldrin	60-57-1	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: alpha-Endosulfan	959-98-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: beta-Endosulfan	33213-65-9	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endosulfan sulfate	1031-07-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endosulfan (sum)	115-29-7	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin	72-20-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin aldehyde	7421-93-4	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
		EP131A: Endrin ketone	53494-70-5	0.50	µg/kg	<0.50	<0.50	0.0	No Limit
EP131A: Heptachlor	76-44-8	0.50	µg/kg	<0.50	<0.50	0.0	No Limit		
EP131A: Heptachlor epoxide	1024-57-3	0.50	µg/kg	<0.50	<0.50	0.0	No Limit		
EP131A: Hexachlorobenzene (HCB)	118-74-1	0.50	µg/kg	<0.50	<0.50	0.0	No Limit		
EP131A: Methoxychlor	72-43-5	0.50	µg/kg	<0.50	<0.50	0.0	No Limit		
EP131B: Polychlorinated Biphenyls (as Aroclors) (QC Lot: 2652222)									
EP1210303-001	Anonymous	EP131B: Total Polychlorinated biphenyls	----	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1016	12674-11-2	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1221	11104-28-2	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1232	11141-16-5	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1242	53469-21-9	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1248	12672-29-6	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1254	11097-69-1	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1260	11096-82-5	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
EP1210303-011	Anonymous	EP131B: Total Polychlorinated biphenyls	----	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1016	12674-11-2	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1221	11104-28-2	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1232	11141-16-5	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1242	53469-21-9	5.0	µg/kg	<5.0	<5.0	0.0	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 (%)
EP131B: Polychlorinated Biphenyls (as Aroclors) (QC Lot: 2652222) - continued									
EP1210303-011	Anonymous	EP131B: Aroclor 1248	12672-29-6	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1254	11097-69-1	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1260	11096-82-5	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
EP131B: Polychlorinated Biphenyls (as Aroclors) (QC Lot: 2652225)									
EP1210363-001	T10C01	EP131B: Total Polychlorinated biphenyls	----	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1016	12674-11-2	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1221	11104-28-2	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1232	11141-16-5	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1242	53469-21-9	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1248	12672-29-6	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1254	11097-69-1	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1260	11096-82-5	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
EP1210363-012	T18C02	EP131B: Total Polychlorinated biphenyls	----	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1016	12674-11-2	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1221	11104-28-2	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1232	11141-16-5	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1242	53469-21-9	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1248	12672-29-6	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1254	11097-69-1	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
		EP131B: Aroclor 1260	11096-82-5	5.0	µg/kg	<5.0	<5.0	0.0	No Limit
EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2652216)									
EP1210303-001	Anonymous	EP132B-SD: Acenaphthylene	208-96-8	4	µg/kg	49	31	45.6	No Limit
		EP132B-SD: Acenaphthene	83-32-9	4	µg/kg	6	5	0.0	No Limit
		EP132B-SD: Fluorene	86-73-7	4	µg/kg	10	9	18.2	No Limit
		EP132B-SD: Phenanthrene	85-01-8	4	µg/kg	22	27	18.7	No Limit
		EP132B-SD: Anthracene	120-12-7	4	µg/kg	28	20	35.7	No Limit
		EP132B-SD: Fluoranthene	206-44-0	4	µg/kg	92	81	12.0	0% - 20%
		EP132B-SD: Pyrene	129-00-0	4	µg/kg	137	117	15.6	0% - 20%
		EP132B-SD: Benz(a)anthracene	56-55-3	4	µg/kg	50	42	17.4	0% - 50%
		EP132B-SD: Chrysene	218-01-9	4	µg/kg	46	44	6.3	0% - 50%
		EP132B-SD: Benzo(b)fluoranthene	205-99-2	4	µg/kg	73	55	27.2	0% - 50%
		EP132B-SD: Benzo(k)fluoranthene	207-08-9	4	µg/kg	32	23	32.7	No Limit
		EP132B-SD: Benzo(e)pyrene	192-97-2	4	µg/kg	47	34	31.6	No Limit
		EP132B-SD: Benzo(a)pyrene	50-32-8	4	µg/kg	92	69	28.2	0% - 50%
		EP132B-SD: Perylene	198-55-0	4	µg/kg	95	27	# 112	No Limit
		EP132B-SD: Benzo(g,h,i)perylene	191-24-2	4	µg/kg	54	43	23.2	0% - 50%
		EP132B-SD: Dibenz(a,h)anthracene	53-70-3	4	µg/kg	28	16	57.2	No Limit
		EP132B-SD: Indeno(1,2,3-cd)pyrene	193-39-5	4	µg/kg	58	45	25.0	0% - 50%
		EP132B-SD: Sum of PAHs	----	4	µg/kg	978	736	# 28.2	0% - 20%
		EP132B-SD: Naphthalene	91-20-3	5	µg/kg	19	18	0.0	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 (%)
EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2652216) - continued									
EP1210303-001	Anonymous	EP132B-SD: 2-Methylnaphthalene	91-57-6	5	µg/kg	8	10	22.7	No Limit
		EP132B-SD: Coronene	191-07-1	5	µg/kg	32	20	45.5	No Limit
EP1210303-011	Anonymous	EP132B-SD: Acenaphthylene	208-96-8	4	µg/kg	202	152	28.2	0% - 20%
		EP132B-SD: Acenaphthene	83-32-9	4	µg/kg	<50	<50	0.0	No Limit
		EP132B-SD: Fluorene	86-73-7	4	µg/kg	<50	<50	0.0	No Limit
		EP132B-SD: Phenanthrene	85-01-8	4	µg/kg	98	78	23.4	0% - 50%
		EP132B-SD: Anthracene	120-12-7	4	µg/kg	120	88	30.7	0% - 20%
		EP132B-SD: Fluoranthene	206-44-0	4	µg/kg	312	238	27.0	0% - 20%
		EP132B-SD: Pyrene	129-00-0	4	µg/kg	457	357	24.6	0% - 20%
		EP132B-SD: Benz(a)anthracene	56-55-3	4	µg/kg	213	163	26.6	0% - 20%
		EP132B-SD: Chrysene	218-01-9	4	µg/kg	236	182	26.0	0% - 20%
		EP132B-SD: Benzo(b)fluoranthene	205-99-2	4	µg/kg	338	245	31.8	0% - 20%
		EP132B-SD: Benzo(k)fluoranthene	207-08-9	4	µg/kg	186	136	31.0	0% - 20%
		EP132B-SD: Benzo(e)pyrene	192-97-2	4	µg/kg	222	170	26.1	0% - 20%
		EP132B-SD: Benzo(a)pyrene	50-32-8	4	µg/kg	409	296	32.0	0% - 20%
		EP132B-SD: Perylene	198-55-0	4	µg/kg	80	59	30.4	0% - 50%
		EP132B-SD: Benzo(g,h,i)perylene	191-24-2	4	µg/kg	236	147	46.5	0% - 20%
		EP132B-SD: Dibenz(a,h)anthracene	53-70-3	4	µg/kg	80	61	27.1	0% - 50%
		EP132B-SD: Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	212	120	55.6	0% - 20%
		EP132B-SD: Sum of PAHs	----	4	µg/kg	3560	2600	# 31.0	0% - 20%
		EP132B-SD: Naphthalene	91-20-3	5	µg/kg	94	59	45.8	0% - 50%
		EP132B-SD: 2-Methylnaphthalene	91-57-6	5	µg/kg	<50	53	5.1	0% - 50%
EP132B-SD: Coronene	191-07-1	5	µg/kg	66	<50	27.6	No Limit		
EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2652218)									
EP1210363-002	T12C01	EP132B-SD: Acenaphthylene	208-96-8	4	µg/kg	117	99	16.5	0% - 20%
		EP132B-SD: Acenaphthene	83-32-9	4	µg/kg	29	<25	15.7	No Limit
		EP132B-SD: Fluorene	86-73-7	4	µg/kg	44	34	26.2	No Limit
		EP132B-SD: Phenanthrene	85-01-8	4	µg/kg	132	100	27.5	0% - 20%
		EP132B-SD: Anthracene	120-12-7	4	µg/kg	83	45	58.6	0% - 50%
		EP132B-SD: Fluoranthene	206-44-0	4	µg/kg	382	244	44.3	0% - 20%
		EP132B-SD: Pyrene	129-00-0	4	µg/kg	620	400	# 43.2	0% - 20%
		EP132B-SD: Benz(a)anthracene	56-55-3	4	µg/kg	204	176	14.9	0% - 20%
		EP132B-SD: Chrysene	218-01-9	4	µg/kg	216	191	12.1	0% - 20%
		EP132B-SD: Benzo(b)fluoranthene	205-99-2	4	µg/kg	211	198	6.0	0% - 20%
		EP132B-SD: Benzo(k)fluoranthene	207-08-9	4	µg/kg	117	123	4.3	0% - 20%
		EP132B-SD: Benzo(e)pyrene	192-97-2	4	µg/kg	153	156	1.6	0% - 20%
		EP132B-SD: Benzo(a)pyrene	50-32-8	4	µg/kg	280	284	1.5	0% - 20%
		EP132B-SD: Perylene	198-55-0	4	µg/kg	45	47	3.3	0% - 50%
		EP132B-SD: Benzo(g,h,i)perylene	191-24-2	4	µg/kg	142	167	16.0	0% - 20%
		EP132B-SD: Dibenz(a,h)anthracene	53-70-3	4	µg/kg	40	42	5.7	0% - 50%



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 (%)
EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2652218) - continued									
EP1210363-002	T12C01	EP132B-SD: Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	110	144	27.2	0% - 20%
		EP132B-SD: Sum of PAHs	----	4	µg/kg	3160	2610	19.2	0% - 20%
		EP132B-SD: Naphthalene	91-20-3	5	µg/kg	122	57	72.7	0% - 50%
		EP132B-SD: 2-Methylnaphthalene	91-57-6	5	µg/kg	62	31	65.8	No Limit
		EP132B-SD: Coronene	191-07-1	5	µg/kg	51	68	28.4	0% - 50%
EP1210363-012	T18C02	EP132B-SD: Acenaphthylene	208-96-8	4	µg/kg	132	182	31.9	0% - 20%
		EP132B-SD: Acenaphthene	83-32-9	4	µg/kg	<50	53	6.3	0% - 50%
		EP132B-SD: Fluorene	86-73-7	4	µg/kg	54	64	16.8	0% - 50%
		EP132B-SD: Phenanthrene	85-01-8	4	µg/kg	116	141	19.8	0% - 20%
		EP132B-SD: Anthracene	120-12-7	4	µg/kg	75	99	26.7	0% - 20%
		EP132B-SD: Fluoranthene	206-44-0	4	µg/kg	317	406	24.6	0% - 20%
		EP132B-SD: Pyrene	129-00-0	4	µg/kg	469	594	23.5	0% - 20%
		EP132B-SD: Benz(a)anthracene	56-55-3	4	µg/kg	170	226	28.2	0% - 20%
		EP132B-SD: Chrysene	218-01-9	4	µg/kg	185	234	23.6	0% - 20%
		EP132B-SD: Benzo(b)fluoranthene	205-99-2	4	µg/kg	299	348	15.3	0% - 20%
		EP132B-SD: Benzo(k)fluoranthene	207-08-9	4	µg/kg	112	152	30.8	0% - 20%
		EP132B-SD: Benzo(e)pyrene	192-97-2	4	µg/kg	193	233	18.6	0% - 20%
		EP132B-SD: Benzo(a)pyrene	50-32-8	4	µg/kg	291	360	21.3	0% - 20%
		EP132B-SD: Perylene	198-55-0	4	µg/kg	57	74	26.6	0% - 50%
		EP132B-SD: Benzo(g,h,i)perylene	191-24-2	4	µg/kg	140	180	25.3	0% - 20%
		EP132B-SD: Dibenz(a,h)anthracene	53-70-3	4	µg/kg	<50	<50	0.0	No Limit
		EP132B-SD: Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	90	128	34.7	0% - 20%
		EP132B-SD: Sum of PAHs	----	4	µg/kg	2880	3730	# 25.8	0% - 20%
		EP132B-SD: Naphthalene	91-20-3	5	µg/kg	110	120	8.5	0% - 20%
		EP132B-SD: 2-Methylnaphthalene	91-57-6	5	µg/kg	69	82	17.9	0% - 50%
EP132B-SD: Coronene	191-07-1	5	µg/kg	<50	55	9.6	0% - 50%		
EP201: Carbamate Pesticides by LCMS (QC Lot: 2649115)									
EP1210224-158	Anonymous	EP201: Oxamyl	23135-22-0	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Methomyl	16752-77-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: 3-Hydroxy Carbofuran	16655-82-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Aldicarb	116-06-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Bendiocarb	22781-23-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Thiodicarb	59669-26-0	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Carbofuran	1563-66-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Carbaryl	63-25-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Methiocarb	2032-65-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
EP1210395-013	Anonymous	EP201: Oxamyl	23135-22-0	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Methomyl	16752-77-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: 3-Hydroxy Carbofuran	16655-82-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Aldicarb	116-06-3	0.02	mg/kg	<0.02	<0.02	0.0	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 (%)
EP201: Carbamate Pesticides by LCMS (QC Lot: 2649115) - continued									
EP1210395-013	Anonymous	EP201: Bendiocarb	22781-23-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Thiodicarb	59669-26-0	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Carbofuran	1563-66-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Carbaryl	63-25-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP201: Methiocarb	2032-65-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2649128)									
EM1214634-001	Anonymous	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: 2,4-DB	94-82-6	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: 2,4-DP	120-36-5	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: 2,4-D	94-75-7	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: 2,4,5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: 2,4,5-T	93-76-5	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.04	<0.04	0.0	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 Sample (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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EA029-B: Acidity Trail (QCLot: 2646730)									
EA029-TPA: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	----	----	----	----	
EA033-A: Actual Acidity (QCLot: 2646729)									
EA033: pH KCl (23A)	----	0.1	pH Unit	<0.1	----	----	----	----	
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	116.215 mole H+ / t	104	70	130	
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----	
EA033-B: Potential Acidity (QCLot: 2646729)									
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	.199 % S	95.0	70	130	
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----	
EA033-C: Acid Neutralising Capacity (QCLot: 2646729)									
EA033: Acid Neutralising Capacity (19A2)	----	0.01	% CaCO3	<0.01	4.9 % CaCO3	97.6	70	130	
EA033: acidity - Acid Neutralising Capacity (a-19A2)	----	10	mole H+ / t	<10	----	----	----	----	
EA033: sulfidic - Acid Neutralising Capacity (s-19A2)	----	0.01	% pyrite S	<0.01	----	----	----	----	
EA033-E: Acid Base Accounting (QCLot: 2646729)									
EA033: ANC Fineness Factor	----	0.5		<0.5	----	----	----	----	
EA033: Net Acidity (sulfur units)	----	0.02	% S	<0.02	----	----	----	----	
EA033: Net Acidity (acidity units)	----	10	mole H+ / t	<10	----	----	----	----	
EA033: Liming Rate	----	1	kg CaCO3/t	<1	----	----	----	----	
EA038: Acid Volatile Sulfur (QCLot: 2672395)									
EA038: Acid Volatile Sulfur	----	0.001	%	<0.001	0.17 %	88.1	70	130	
EG005T: Total Metals by ICP-AES (QCLot: 2651070)									
EG005T: Aluminium	7429-90-5	50	mg/kg	<50	----	----	----	----	
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	13.75 mg/kg	102	85.5	116	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	61.6 mg/kg	99.6	90	112	
EG005T: Copper	7440-50-8	5	mg/kg	<5	54.7 mg/kg	97.5	93	115	
EG005T: Iron	7439-89-6	50	mg/kg	<50	----	----	----	----	
EG005T: Lead	7439-92-1	5	mg/kg	<5	55.5 mg/kg	98.7	88.8	111	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	----	----	----	----	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	----	----	----	----	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.1 mg/kg	104	91	115	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----	
EG005T: Tin	7440-31-5	5	mg/kg	<5	----	----	----	----	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	105 mg/kg	104	86.6	113	
EG005T: Magnesium	7439-95-4	50	mg/kg	<50	----	----	----	----	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 2651072)									
EG005T: Aluminium	7429-90-5	50	mg/kg	<50	----	----	----	----	
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	13.75 mg/kg	97.4	85.5	116	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	61.6 mg/kg	102	90	112	
EG005T: Copper	7440-50-8	5	mg/kg	<5	54.7 mg/kg	101	93	115	
EG005T: Iron	7439-89-6	50	mg/kg	<50	----	----	----	----	
EG005T: Lead	7439-92-1	5	mg/kg	<5	55.5 mg/kg	99.5	88.8	111	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	----	----	----	----	
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	----	----	----	----	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.1 mg/kg	106	91	115	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----	
EG005T: Tin	7440-31-5	5	mg/kg	<5	----	----	----	----	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	105 mg/kg	105	86.6	113	
EG005T: Magnesium	7439-95-4	50	mg/kg	<50	----	----	----	----	
EG020T: Total Metals by ICP-MS (QCLot: 2652115)									
EG020Y-T: Cadmium	7440-43-9	0.1	mg/kg	<0.1	2.82 mg/kg	91.0	70	130	
EG020T: Total Metals by ICP-MS (QCLot: 2652116)									
EG020Y-T: Cadmium	7440-43-9	0.1	mg/kg	<0.1	2.82 mg/kg	88.5	70	130	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2651071)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	1.36 mg/kg	97.6	75.4	121	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2651073)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	1.36 mg/kg	101	75.4	121	
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2646874)									
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	108	70	130	
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2646875)									
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	108	70	130	
EK055: Ammonia as N (QCLot: 2650998)									
EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	5 mg/kg	107	70	130	
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2647996)									
EK057G: Nitrite as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	98.2	89	121	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2647997)									
EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	103	90	112	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2651010)									
EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	1000 mg/kg	90.6	70	130	
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2651011)									
EK067G: Total Phosphorus as P	----	2	mg/kg	<2	440 mg/kg	91.5	70	130	
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2647998)									



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2647998) - continued									
EP071G: Reactive Phosphorus as P	----	0.1	mg/kg	<0.1	2.5 mg/kg	98.6	92.3	112	
EP003: Total Organic Carbon (TOC) in Soil (QCLot: 2664059)									
EP003: Total Organic Carbon	----	0.02	%	<0.02	100 %	98.5	70	130	
EP003: Total Organic Carbon (TOC) in Soil (QCLot: 2664060)									
EP003: Total Organic Carbon	----	0.02	%	<0.02	100 %	101	70	130	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2655588)									
EP074: Benzene	71-43-2	0.5	mg/kg	<0.5	1 mg/kg	97.2	68	128	
EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	100	65	133	
EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	101	65	127	
EP074: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	104	69	127	
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	98.0	64	126	
EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	103	70	128	
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	102	66	128	
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	102	63	129	
EP074: 1,3,5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	103	63	129	
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	104	64	130	
EP074: 1,2,4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	102	63	129	
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	101	63	129	
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	100	62	130	
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	105	61	131	
EP074B: Oxygenated Compounds (QCLot: 2655588)									
EP074: Vinyl Acetate	108-05-4	1	mg/kg	----	10 mg/kg	91.7	29.6	156	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Butanone (MEK)	78-93-3	1	mg/kg	----	10 mg/kg	93.3	44	158	
		5	mg/kg	<5	----	----	----	----	
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	1	mg/kg	----	10 mg/kg	85.2	54	138	
		5	mg/kg	<5	----	----	----	----	
EP074: 2-Hexanone (MBK)	591-78-6	1	mg/kg	----	10 mg/kg	92.8	54	136	
		5	mg/kg	<5	----	----	----	----	
EP074C: Sulfonated Compounds (QCLot: 2655588)									
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	90.5	54	126	
EP074D: Fumigants (QCLot: 2655588)									
EP074: 2,2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	108	55	133	
EP074: 1,2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	97.4	69	127	
EP074: cis-1,3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	99.6	54	124	
EP074: trans-1,3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	91.4	51	125	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	88.4	66	126	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 2655588)									
EP074: Dichlorodifluoromethane	75-71-8	1	mg/kg	----	10 mg/kg	73.0	30	148	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloromethane	74-87-3	1	mg/kg	----	10 mg/kg	81.3	41	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Vinyl chloride	75-01-4	1	mg/kg	----	10 mg/kg	99.1	43	147	
		5	mg/kg	<5	----	----	----	----	
EP074: Bromomethane	74-83-9	1	mg/kg	----	10 mg/kg	87.4	47	141	
		5	mg/kg	<5	----	----	----	----	
EP074: Chloroethane	75-00-3	1	mg/kg	----	10 mg/kg	96.3	47	143	
		5	mg/kg	<5	----	----	----	----	
EP074: Trichlorofluoromethane	75-69-4	1	mg/kg	----	10 mg/kg	100	49	135	
		5	mg/kg	<5	----	----	----	----	
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	99.2	54	136	
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	86.8	43	129	
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	97.5	62	130	
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	102	66	132	
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	94.4	66	132	
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	108	62	126	
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	102	64	128	
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	107	59	125	
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	96.1	70	132	
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	101	65	131	
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	93.1	65	127	
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	101	70	130	
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	98.8	72	128	
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	103	67	143	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	81.2	62	122	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	89.0	54	128	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	98.2	55	129	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	93.3	56	132	
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	95.4	65	135	
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	81.1	19.8	134	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	86.1	53	129	
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	104	48	136	
EP074F: Halogenated Aromatic Compounds (QCLot: 2655588)									
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	99.8	70	128	
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	94.7	67	127	
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	99.7	64	130	
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	99.9	62	130	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074F: Halogenated Aromatic Compounds (QCLot: 2655588) - continued									
EP074: 1,3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	96.2	63	129	
EP074: 1,4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	91.3	63	129	
EP074: 1,2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	95.0	66	128	
EP074: 1,2,4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	98.4	54	134	
EP074: 1,2,3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	100	60	132	
EP074G: Trihalomethanes (QCLot: 2655588)									
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	99.2	65	131	
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	97.8	61	121	
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	90.7	63	121	
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	98.0	60	126	
EP074H: Naphthalene (QCLot: 2655588)									
EP074: Naphthalene	91-20-3	0.5	mg/kg	----	1 mg/kg	91.9	63	133	
		5	mg/kg	<5	----	----	----	----	
EP075(SIM)A: Phenolic Compounds (QCLot: 2653984)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	10 mg/kg	102	56	128	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	10 mg/kg	105	54	128	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	10 mg/kg	102	48	126	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	20 mg/kg	107	59	127	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	10 mg/kg	102	52	130	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	10 mg/kg	98.9	38	128	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	10 mg/kg	106	51	129	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	10 mg/kg	113	58	130	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	10 mg/kg	120	54	136	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	10 mg/kg	114	49	135	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	10 mg/kg	98.4	55	135	
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	10 mg/kg	95.1	26.4	146	
EP075(SIM)A: Phenolic Compounds (QCLot: 2654048)									
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	10 mg/kg	79.8	56	128	
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	10 mg/kg	80.6	54	128	
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	10 mg/kg	81.0	48	126	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	20 mg/kg	79.9	59	127	
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	10 mg/kg	91.1	52	130	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	10 mg/kg	75.7	38	128	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	10 mg/kg	87.3	51	129	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	10 mg/kg	79.9	58	130	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	10 mg/kg	78.0	54	136	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	10 mg/kg	76.4	49	135	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	10 mg/kg	79.2	55	135	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 2654048) - continued									
EP075(SIM): Pentachlorophenol	87-86-5	1.0	mg/kg	<1	10 mg/kg	92.6	26.4	146	
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2652217)									
EP071-SD: C10 - C14 Fraction	----	3	mg/kg	<3	5 mg/kg	95.0	75.2	116	
EP071-SD: C15 - C28 Fraction	----	3	mg/kg	<3	7.5 mg/kg	105	75.3	113	
EP071-SD: C29 - C36 Fraction	----	5	mg/kg	<5	5 mg/kg	100	72.6	117	
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2652219)									
EP071-SD: C10 - C14 Fraction	----	3	mg/kg	<3	5 mg/kg	97.0	75.2	116	
EP071-SD: C15 - C28 Fraction	----	3	mg/kg	<3	7.5 mg/kg	98.7	75.3	113	
EP071-SD: C29 - C36 Fraction	----	5	mg/kg	<5	5 mg/kg	91.0	72.6	117	
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2655583)									
EP080-SD: C6 - C9 Fraction	----	3	mg/kg	<3	26 mg/kg	85.4	61	133	
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2655589)									
EP080-SD: C6 - C9 Fraction	----	3	mg/kg	<3	26 mg/kg	95.2	61	133	
EP080-SD: BTEXN (QCLot: 2655583)									
EP080-SD: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	98.8	66	122	
EP080-SD: Toluene	108-88-3	0.2	mg/kg	<0.2	1 mg/kg	110	69	122	
EP080-SD: Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	1 mg/kg	105	66	126	
EP080-SD: meta- & para-Xylene	108-38-3	0.2	mg/kg	<0.2	2 mg/kg	105	59	129	
EP080-SD: ortho-Xylene	106-42-3								
EP080-SD: ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	1 mg/kg	109	66	126	
EP080-SD: BTEXN (QCLot: 2655589)									
EP080-SD: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	101	66	122	
EP080-SD: Toluene	108-88-3	0.2	mg/kg	<0.2	1 mg/kg	109	69	122	
EP080-SD: Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	1 mg/kg	109	66	126	
EP080-SD: meta- & para-Xylene	108-38-3	0.2	mg/kg	<0.2	2 mg/kg	105	59	129	
EP080-SD: ortho-Xylene	106-42-3								
EP080-SD: ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	1 mg/kg	109	66	126	
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2652220)									
EP130: Bromophos-ethyl	4824-78-6	10	µg/kg	<10	50 µg/kg	89.7	36.9	142	
EP130: Carbophenothion	786-19-6	10	µg/kg	<10	50 µg/kg	121	0.5	157	
EP130: Chlorfenvinphos (E)	18708-86-6	10	µg/kg	<10.0	5 µg/kg	73.2	50.3	137	
EP130: Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<10	50 µg/kg	83.9	55.9	152	
EP130: Chlorpyrifos	2921-88-2	10	µg/kg	<10	50 µg/kg	75.5	49	140	
EP130: Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<10	50 µg/kg	76.6	28.1	142	
EP130: Demeton-S-methyl	919-86-8	10	µg/kg	<10	50 µg/kg	131	36.6	172	
EP130: Diazinon	333-41-5	10	µg/kg	<10	50 µg/kg	83.6	37.2	148	
EP130: Dichlorvos	62-73-7	10	µg/kg	<10	50 µg/kg	62.2	32.7	153	
EP130: Dimethoate	60-51-5	10	µg/kg	<10	50 µg/kg	102	33.2	150	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2652220) - continued									
EP130: Ethion	563-12-2	10	µg/kg	<10	50 µg/kg	78.8	44	146	
EP130: Fenamiphos	22224-92-6	10	µg/kg	<10	50 µg/kg	77.8	3.08	162	
EP130: Fenthion	55-38-9	10	µg/kg	<10	50 µg/kg	72.5	10.6	157	
EP130: Malathion	121-75-5	10	µg/kg	<10	50 µg/kg	108	38.1	143	
EP130: Azinphos Methyl	86-50-0	10	µg/kg	<10	50 µg/kg	64.6	8.13	159	
EP130: Monocrotophos	6923-22-4	10	µg/kg	<10	50 µg/kg	97.3	19.7	176	
EP130: Parathion	56-38-2	10	µg/kg	<10	50 µg/kg	78.2	39.2	145	
EP130: Parathion-methyl	298-00-0	10	µg/kg	<10	50 µg/kg	91.8	23.5	152	
EP130: Pirimphos-ethyl	23505-41-1	10	µg/kg	<10	50 µg/kg	67.7	47.1	141	
EP130: Prothiofos	34643-46-4	10	µg/kg	<10	50 µg/kg	73.9	36.1	148	
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2652223)									
EP130: Bromophos-ethyl	4824-78-6	10	µg/kg	<10	50 µg/kg	71.2	36.9	142	
EP130: Carbophenothion	786-19-6	10	µg/kg	<10	50 µg/kg	84.8	0.5	157	
EP130: Chlorfenvinphos (E)	18708-86-6	10	µg/kg	<10.0	5 µg/kg	71.3	50.3	137	
EP130: Chlorfenvinphos (Z)	18708-87-7	10	µg/kg	<10	50 µg/kg	75.8	55.9	152	
EP130: Chlorpyrifos	2921-88-2	10	µg/kg	<10	50 µg/kg	74.8	49	140	
EP130: Chlorpyrifos-methyl	5598-13-0	10	µg/kg	<10	50 µg/kg	80.9	28.1	142	
EP130: Demeton-S-methyl	919-86-8	10	µg/kg	<10	50 µg/kg	105	36.6	172	
EP130: Diazinon	333-41-5	10	µg/kg	<10	50 µg/kg	88.1	37.2	148	
EP130: Dichlorvos	62-73-7	10	µg/kg	<10	50 µg/kg	82.1	32.7	153	
EP130: Dimethoate	60-51-5	10	µg/kg	<10	50 µg/kg	77.6	33.2	150	
EP130: Ethion	563-12-2	10	µg/kg	<10	50 µg/kg	70.4	44	146	
EP130: Fenamiphos	22224-92-6	10	µg/kg	<10	50 µg/kg	86.5	3.08	162	
EP130: Fenthion	55-38-9	10	µg/kg	<10	50 µg/kg	69.6	10.6	157	
EP130: Malathion	121-75-5	10	µg/kg	<10	50 µg/kg	79.2	38.1	143	
EP130: Azinphos Methyl	86-50-0	10	µg/kg	<10	50 µg/kg	101	8.13	159	
EP130: Monocrotophos	6923-22-4	10	µg/kg	<10	50 µg/kg	74.2	19.7	176	
EP130: Parathion	56-38-2	10	µg/kg	<10	50 µg/kg	87.3	39.2	145	
EP130: Parathion-methyl	298-00-0	10	µg/kg	<10	50 µg/kg	73.1	23.5	152	
EP130: Pirimphos-ethyl	23505-41-1	10	µg/kg	<10	50 µg/kg	70.3	47.1	141	
EP130: Prothiofos	34643-46-4	10	µg/kg	<10	50 µg/kg	72.3	36.1	148	
EP131A: Organochlorine Pesticides (QCLot: 2652221)									
EP131A: Aldrin	309-00-2	0.5	µg/kg	<0.50	5 µg/kg	120	31.7	140	
EP131A: alpha-BHC	319-84-6	0.5	µg/kg	<0.50	5 µg/kg	128	24.5	150	
EP131A: beta-BHC	319-85-7	0.5	µg/kg	<0.50	5 µg/kg	95.9	36.9	139	
EP131A: delta-BHC	319-86-8	0.5	µg/kg	<0.50	5 µg/kg	62.2	38.2	137	
EP131A: 4,4'-DDD	72-54-8	0.5	µg/kg	<0.50	5 µg/kg	110	42.5	141	
EP131A: 4,4'-DDE	72-55-9	0.5	µg/kg	<0.50	5 µg/kg	82.4	34.8	140	
EP131A: 4,4'-DDT	50-29-3	0.5	µg/kg	<0.50	5 µg/kg	83.7	38	143	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP131A: Organochlorine Pesticides (QCLot: 2652221) - continued									
EP131A: Sum of DDD + DDE + DDT	----	0.5	µg/kg	<0.50	----	----	----	----	
EP131A: Dieldrin	60-57-1	0.5	µg/kg	<0.50	5 µg/kg	101	43.2	134	
EP131A: alpha-Endosulfan	959-98-8	0.5	µg/kg	<0.50	5 µg/kg	106	23.7	139	
EP131A: beta-Endosulfan	33213-65-9	0.5	µg/kg	<0.50	5 µg/kg	113	35.8	138	
EP131A: Endosulfan sulfate	1031-07-8	0.5	µg/kg	<0.50	5 µg/kg	90.3	7.45	158	
EP131A: Endosulfan (sum)	115-29-7	0.5	µg/kg	<0.50	----	----	----	----	
EP131A: Endrin	72-20-8	0.5	µg/kg	<0.50	5 µg/kg	67.6	21.6	162	
EP131A: Endrin aldehyde	7421-93-4	0.5	µg/kg	<0.50	5 µg/kg	86.9	19.3	131	
EP131A: Endrin ketone	53494-70-5	0.5	µg/kg	<0.50	5 µg/kg	119	17.9	141	
EP131A: Heptachlor	76-44-8	0.5	µg/kg	<0.50	5 µg/kg	143	31	153	
EP131A: Heptachlor epoxide	1024-57-3	0.5	µg/kg	<0.50	5 µg/kg	115	34.3	138	
EP131A: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/kg	<0.50	5 µg/kg	92.4	18.6	146	
EP131A: gamma-BHC	58-89-9	0.5	µg/kg	<0.50	5 µg/kg	131	30.7	145	
EP131A: Methoxychlor	72-43-5	0.5	µg/kg	<0.50	5 µg/kg	66.0	15	157	
EP131A: cis-Chlordane	5103-71-9	0.5	µg/kg	<0.50	5 µg/kg	118	22.3	145	
EP131A: trans-Chlordane	5103-74-2	0.5	µg/kg	<0.50	5 µg/kg	104	42.4	139	
EP131A: Total Chlordane (sum)	----	0.5	µg/kg	<0.50	----	----	----	----	
EP131A: Organochlorine Pesticides (QCLot: 2652224)									
EP131A: Aldrin	309-00-2	0.5	µg/kg	<0.50	5 µg/kg	63.8	31.7	140	
EP131A: alpha-BHC	319-84-6	0.5	µg/kg	<0.50	5 µg/kg	64.4	24.5	150	
EP131A: beta-BHC	319-85-7	0.5	µg/kg	<0.50	5 µg/kg	69.3	36.9	139	
EP131A: delta-BHC	319-86-8	0.5	µg/kg	<0.50	5 µg/kg	61.2	38.2	137	
EP131A: 4,4'-DDD	72-54-8	0.5	µg/kg	<0.50	5 µg/kg	108	42.5	141	
EP131A: 4,4'-DDE	72-55-9	0.5	µg/kg	<0.50	5 µg/kg	67.0	34.8	140	
EP131A: 4,4'-DDT	50-29-3	0.5	µg/kg	<0.50	5 µg/kg	94.0	38	143	
EP131A: Sum of DDD + DDE + DDT	----	0.5	µg/kg	<0.50	----	----	----	----	
EP131A: Dieldrin	60-57-1	0.5	µg/kg	<0.50	5 µg/kg	80.2	43.2	134	
EP131A: alpha-Endosulfan	959-98-8	0.5	µg/kg	<0.50	5 µg/kg	80.1	23.7	139	
EP131A: beta-Endosulfan	33213-65-9	0.5	µg/kg	<0.50	5 µg/kg	82.5	35.8	138	
EP131A: Endosulfan sulfate	1031-07-8	0.5	µg/kg	<0.50	5 µg/kg	106	7.45	158	
EP131A: Endosulfan (sum)	115-29-7	0.5	µg/kg	<0.50	----	----	----	----	
EP131A: Endrin	72-20-8	0.5	µg/kg	<0.50	5 µg/kg	129	21.6	162	
EP131A: Endrin aldehyde	7421-93-4	0.5	µg/kg	<0.50	5 µg/kg	73.3	19.3	131	
EP131A: Endrin ketone	53494-70-5	0.5	µg/kg	<0.50	5 µg/kg	94.2	17.9	141	
EP131A: Heptachlor	76-44-8	0.5	µg/kg	<0.50	5 µg/kg	96.7	31	153	
EP131A: Heptachlor epoxide	1024-57-3	0.5	µg/kg	<0.50	5 µg/kg	66.6	34.3	138	
EP131A: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/kg	<0.50	5 µg/kg	55.5	18.6	146	
EP131A: gamma-BHC	58-89-9	0.5	µg/kg	<0.50	5 µg/kg	67.3	30.7	145	
EP131A: Methoxychlor	72-43-5	0.5	µg/kg	<0.50	5 µg/kg	133	15	157	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP131A: Organochlorine Pesticides (QCLot: 2652224) - continued									
EP131A: cis-Chlordane	5103-71-9	0.5	µg/kg	<0.50	5 µg/kg	60.9	22.3	145	
EP131A: trans-Chlordane	5103-74-2	0.5	µg/kg	<0.50	5 µg/kg	69.1	42.4	139	
EP131A: Total Chlordane (sum)	----	0.5	µg/kg	<0.50	----	----	----	----	
EP131B: Polychlorinated Biphenyls (as Aroclors) (QCLot: 2652222)									
EP131B: Total Polychlorinated biphenyls	----	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1016	12674-11-2	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1221	11104-28-2	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1232	11141-16-5	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1242	53469-21-9	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1248	12672-29-6	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1254	11097-69-1	5	µg/kg	<5.0	50 µg/kg	100	61.3	121	
EP131B: Aroclor 1260	11096-82-5	5	µg/kg	<5.0	----	----	----	----	
EP131B: Polychlorinated Biphenyls (as Aroclors) (QCLot: 2652225)									
EP131B: Total Polychlorinated biphenyls	----	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1016	12674-11-2	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1221	11104-28-2	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1232	11141-16-5	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1242	53469-21-9	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1248	12672-29-6	5	µg/kg	<5.0	----	----	----	----	
EP131B: Aroclor 1254	11097-69-1	5	µg/kg	<5.0	50 µg/kg	101	61.3	121	
EP131B: Aroclor 1260	11096-82-5	5	µg/kg	<5.0	----	----	----	----	
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2652216)									
EP132B-SD: Naphthalene	91-20-3	5	µg/kg	<5	25 µg/kg	107	----	----	
EP132B-SD: 2-Methylnaphthalene	91-57-6	5	µg/kg	<5	25 µg/kg	112	----	----	
EP132B-SD: Acenaphthylene	208-96-8	4	µg/kg	<4	25 µg/kg	107	----	----	
EP132B-SD: Acenaphthene	83-32-9	4	µg/kg	<4	25 µg/kg	107	----	----	
EP132B-SD: Fluorene	86-73-7	4	µg/kg	<4	25 µg/kg	111	----	----	
EP132B-SD: Phenanthrene	85-01-8	4	µg/kg	<4	25 µg/kg	104	----	----	
EP132B-SD: Anthracene	120-12-7	4	µg/kg	<4	25 µg/kg	103	----	----	
EP132B-SD: Fluoranthene	206-44-0	4	µg/kg	<4	25 µg/kg	99.9	----	----	
EP132B-SD: Pyrene	129-00-0	4	µg/kg	<4	25 µg/kg	102	----	----	
EP132B-SD: Benz(a)anthracene	56-55-3	4	µg/kg	<4	25 µg/kg	93.1	----	----	
EP132B-SD: Chrysene	218-01-9	4	µg/kg	<4	25 µg/kg	98.7	----	----	
EP132B-SD: Benzo(b)fluoranthene	205-99-2	4	µg/kg	<4	25 µg/kg	96.0	----	----	
EP132B-SD: Benzo(k)fluoranthene	207-08-9	4	µg/kg	<4	25 µg/kg	97.7	----	----	
EP132B-SD: Benzo(e)pyrene	192-97-2	4	µg/kg	<4	25 µg/kg	96.4	----	----	
EP132B-SD: Benzo(a)pyrene	50-32-8	4	µg/kg	<4	25 µg/kg	94.9	----	----	
EP132B-SD: Perylene	198-55-0	4	µg/kg	<4	25 µg/kg	98.1	----	----	
EP132B-SD: Benzo(g,h,i)perylene	191-24-2	4	µg/kg	<4	25 µg/kg	95.0	----	----	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2652216) - continued									
EP132B-SD: Dibenz(a,h)anthracene	53-70-3	4	µg/kg	<4	25 µg/kg	94.4	----	----	
EP132B-SD: Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	<4	25 µg/kg	92.7	----	----	
EP132B-SD: Coronene	191-07-1	5	µg/kg	<5	25 µg/kg	95.2	----	----	
EP132B-SD: Sum of PAHs	----	4	µg/kg	<4	----	----	----	----	
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2652218)									
EP132B-SD: Naphthalene	91-20-3	5	µg/kg	<5	25 µg/kg	89.8	----	----	
EP132B-SD: 2-Methylnaphthalene	91-57-6	5	µg/kg	<5	25 µg/kg	86.4	----	----	
EP132B-SD: Acenaphthylene	208-96-8	4	µg/kg	<4	25 µg/kg	84.0	----	----	
EP132B-SD: Acenaphthene	83-32-9	4	µg/kg	<4	25 µg/kg	90.3	----	----	
EP132B-SD: Fluorene	86-73-7	4	µg/kg	<4	25 µg/kg	91.0	----	----	
EP132B-SD: Phenanthrene	85-01-8	4	µg/kg	<4	25 µg/kg	85.8	----	----	
EP132B-SD: Anthracene	120-12-7	4	µg/kg	<4	25 µg/kg	84.2	----	----	
EP132B-SD: Fluoranthene	206-44-0	4	µg/kg	<4	25 µg/kg	88.6	----	----	
EP132B-SD: Pyrene	129-00-0	4	µg/kg	<4	25 µg/kg	92.0	----	----	
EP132B-SD: Benz(a)anthracene	56-55-3	4	µg/kg	<4	25 µg/kg	80.2	----	----	
EP132B-SD: Chrysene	218-01-9	4	µg/kg	<4	25 µg/kg	83.2	----	----	
EP132B-SD: Benzo(b)fluoranthene	205-99-2	4	µg/kg	<4	25 µg/kg	85.6	----	----	
EP132B-SD: Benzo(k)fluoranthene	207-08-9	4	µg/kg	<4	25 µg/kg	78.1	----	----	
EP132B-SD: Benzo(e)pyrene	192-97-2	4	µg/kg	<4	25 µg/kg	80.0	----	----	
EP132B-SD: Benzo(a)pyrene	50-32-8	4	µg/kg	<4	25 µg/kg	83.6	----	----	
EP132B-SD: Perylene	198-55-0	4	µg/kg	<4	25 µg/kg	82.0	----	----	
EP132B-SD: Benzo(g,h,i)perylene	191-24-2	4	µg/kg	<4	25 µg/kg	77.1	----	----	
EP132B-SD: Dibenz(a,h)anthracene	53-70-3	4	µg/kg	<4	25 µg/kg	79.7	----	----	
EP132B-SD: Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	<4	25 µg/kg	78.3	----	----	
EP132B-SD: Coronene	191-07-1	5	µg/kg	<5	25 µg/kg	77.0	----	----	
EP132B-SD: Sum of PAHs	----	4	µg/kg	<4	----	----	----	----	
EP201: Carbamate Pesticides by LCMS (QCLot: 2649115)									
EP201: Oxamyl	23135-22-0	0.02	mg/kg	<0.02	0.04 mg/kg	83.0	73.8	152	
EP201: Methomyl	16752-77-5	0.02	mg/kg	<0.02	0.04 mg/kg	84.1	74.9	145	
EP201: 3-Hydroxy Carbofuran	16655-82-6	0.02	mg/kg	<0.02	0.04 mg/kg	81.8	79.5	146	
EP201: Aldicarb	116-06-3	0.02	mg/kg	<0.02	0.04 mg/kg	85.0	82.2	138	
EP201: Bendiocarb	22781-23-3	0.02	mg/kg	<0.02	0.04 mg/kg	84.7	76.4	142	
EP201: Thiodicarb	59669-26-0	0.02	mg/kg	<0.02	0.04 mg/kg	80.9	75.9	148	
EP201: Carbofuran	1563-66-2	0.02	mg/kg	<0.02	0.04 mg/kg	85.0	78.2	140	
EP201: Carbaryl	63-25-2	0.02	mg/kg	<0.02	0.04 mg/kg	78.8	63	139	
EP201: Methiocarb	2032-65-7	0.02	mg/kg	<0.02	0.04 mg/kg	105	70.2	144	
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2649128)									
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	118	54.4	136	
EP202: 2,4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	108	45.5	144	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2649128) - continued								
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	106	51.7	146
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	101	60	140
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	122	56.8	143
EP202: 2,4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	115	50	141
EP202: 2,4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	123	68.5	139
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	114	50.8	145
EP202: 2,4,5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	99.3	40.8	135
EP202: 2,4,5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	117	57.4	142
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	112	38.9	147
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	113	48.7	138
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	96.9	59.4	149
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	135	53.2	145

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	Spike Recovery (%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 2651070)							
EP1210363-002	T12C01	EG005T: Aluminium	7429-90-5	50 mg/kg	# Not Determined	70	130
		EG005T: Arsenic	7440-38-2	50 mg/kg	99.8	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	107	70	130
		EG005T: Copper	7440-50-8	50 mg/kg	112	70	130
		EG005T: Iron	7439-89-6	50 mg/kg	# Not Determined	70	130
		EG005T: Lead	7439-92-1	50 mg/kg	113	70	130
		EG005T: Manganese	7439-96-5	50 mg/kg	122	70	130
		EG005T: Molybdenum	7439-98-7	10 mg/kg	104	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	101	70	130
		EG005T: Selenium	7782-49-2	10 mg/kg	95.3	70	130
EG005T: Zinc	7440-66-6	50 mg/kg	123	70	130		
EG005T: Total Metals by ICP-AES (QCLot: 2651072)							
EP1210363-022	TZC02	EG005T: Aluminium	7429-90-5	50 mg/kg	# Not Determined	70	130
		EG005T: Arsenic	7440-38-2	50 mg/kg	101	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	112	70	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 2651072) - continued							
EP1210363-022	TZC02	EG005T: Copper	7440-50-8	50 mg/kg	114	70	130
		EG005T: Iron	7439-89-6	50 mg/kg	# Not Determined	70	130
		EG005T: Lead	7439-92-1	50 mg/kg	119	70	130
		EG005T: Manganese	7439-96-5	50 mg/kg	118	70	130
		EG005T: Molybdenum	7439-98-7	10 mg/kg	94.5	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	109	70	130
		EG005T: Selenium	7782-49-2	10 mg/kg	108	70	130
		EG005T: Zinc	7440-66-6	50 mg/kg	126	70	130
EG020T: Total Metals by ICP-MS (QCLot: 2652115)							
EP1210363-002	T12C01	EG020Y-T: Cadmium	7440-43-9	50 mg/kg	102	70	130
EG020T: Total Metals by ICP-MS (QCLot: 2652116)							
EP1210363-022	TZC02	EG020Y-T: Cadmium	7440-43-9	50 mg/kg	105	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2651071)							
EP1210363-002	T12C01	EG035T: Mercury	7439-97-6	10 mg/kg	91.4	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2651073)							
EP1210363-022	TZC02	EG035T: Mercury	7439-97-6	10 mg/kg	114	70	130
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2646874)							
EP1210363-002	T12C01	EK026SF: Total Cyanide	57-12-5	200 mg/kg	103	70	130
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2646875)							
EP1210363-022	TZC02	EK026SF: Total Cyanide	57-12-5	200 mg/kg	112	70	130
EK055: Ammonia as N (QCLot: 2650998)							
EP1210363-009	T17C01	EK055: Ammonia as N	7664-41-7	50 mg/kg	118	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2647996)							
EP1210363-009	T17C01	EK057G: Nitrite as N (Sol.)	----	2.5 mg/kg	94.6	70	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2647997)							
EP1210363-009	T17C01	EK059G: Nitrite + Nitrate as N (Sol.)	----	2.5 mg/kg	97.5	70	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2651010)							
EP1210363-009	T17C01	EK061G: Total Kjeldahl Nitrogen as N	----	500 mg/kg	110	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2651011)							
EP1210363-009	T17C01	EK067G: Total Phosphorus as P	----	100 mg/kg	123	70	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2647998)							
EP1210363-009	T17C01	EK071G: Reactive Phosphorus as P	----	2.5 mg/kg	128	70	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2655588)							
EP1210363-009	T17C01	EP074: Benzene	71-43-2	2.5 mg/kg	# 47.7	70	130



Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2655588) - continued							
EP1210363-009	T17C01	EP074: Toluene	108-88-3	2.5 mg/kg	# 65.8	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 2655588)							
EP1210363-009	T17C01	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	# 23.2	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	# 43.3	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 2655588)							
EP1210363-009	T17C01	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	# 57.3	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 2653984)							
EP1210363-002	T12C01	EP075(SIM): Phenol	108-95-2	10 mg/kg	82.4	73.4	135
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	80.6	71.7	136
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	85.1	62.8	137
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	10 mg/kg	85.2	73.6	128
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	29.7	18.0	152
EP075(SIM)A: Phenolic Compounds (QCLot: 2654048)							
EP1210363-022	TZC02	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.4	73.4	135
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	78.0	71.7	136
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	87.4	62.8	137
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	10 mg/kg	77.4	73.6	128
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	66.7	18.0	152
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2652217)							
EP1210303-001	Anonymous	EP071-SD: C10 - C14 Fraction	----	19.75 mg/kg	71.6	70	130
		EP071-SD: C15 - C28 Fraction	----	87.25 mg/kg	96.2	70	130
		EP071-SD: C29 - C36 Fraction	----	60 mg/kg	107	70	130
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2652219)							
EP1210363-002	T12C01	EP071-SD: C10 - C14 Fraction	----	19.75 mg/kg	97.2	70	130
		EP071-SD: C15 - C28 Fraction	----	87.25 mg/kg	127	70	130
		EP071-SD: C29 - C36 Fraction	----	60 mg/kg	116	70	130
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2655583)							
EP1210363-002	T12C01	EP080-SD: C6 - C9 Fraction	----	32.5 mg/kg	106	70	130
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2655589)							
EP1210363-009	T17C01	EP080-SD: C6 - C9 Fraction	----	32.5 mg/kg	107	70	130
EP080-SD: BTEXN (QCLot: 2655583)							
EP1210363-002	T12C01	EP080-SD: Benzene	71-43-2	2.5 mg/kg	80.9	70	130
		EP080-SD: Toluene	108-88-3	2.5 mg/kg	73.5	70	130
		EP080-SD: Ethylbenzene	100-41-4	2.5 mg/kg	75.7	70	130
		EP080-SD: meta- & para-Xylene	108-38-3	2.5 mg/kg	77.6	70	130
			106-42-3				



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080-SD: BTEXN (QCLot: 2655583) - continued							
EP1210363-002	T12C01	EP080-SD: ortho-Xylene	95-47-6	2.5 mg/kg	80.9	70	130
EP080-SD: BTEXN (QCLot: 2655589)							
EP1210363-009	T17C01	EP080-SD: Benzene	71-43-2	2.5 mg/kg	# 63.6	70	130
		EP080-SD: Toluene	108-88-3	2.5 mg/kg	# 65.4	70	130
		EP080-SD: Ethylbenzene	100-41-4	2.5 mg/kg	76.6	70	130
		EP080-SD: meta- & para-Xylene	108-38-3	2.5 mg/kg	76.8	70	130
		EP080-SD: ortho-Xylene	106-42-3	95-47-6	2.5 mg/kg	77.9	70
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2652220)							
EP1210303-001	Anonymous	EP130: Bromophos-ethyl	4824-78-6	50 µg/kg	67.9	36.9	142
		EP130: Carbophenothion	786-19-6	50 µg/kg	74.5	0.5	157
		EP130: Chlorfenvinphos (E)	18708-86-6	5 µg/kg	51.6	50.3	137
		EP130: Chlorfenvinphos (Z)	18708-87-7	50 µg/kg	61.6	55.9	152
		EP130: Chlorpyrifos	2921-88-2	50 µg/kg	66.9	49	140
		EP130: Chlorpyrifos-methyl	5598-13-0	50 µg/kg	69.2	28.1	142
		EP130: Demeton-S-methyl	919-86-8	50 µg/kg	37.9	36.6	172
		EP130: Diazinon	333-41-5	50 µg/kg	70.5	37.2	148
		EP130: Dichlorvos	62-73-7	50 µg/kg	39.9	32.7	153
		EP130: Dimethoate	60-51-5	50 µg/kg	43.8	33.2	150
		EP130: Ethion	563-12-2	50 µg/kg	62.6	44	146
		EP130: Fenamiphos	22224-92-6	50 µg/kg	49.5	3.08	162
		EP130: Fenthion	55-38-9	50 µg/kg	28.7	10.6	157
		EP130: Malathion	121-75-5	50 µg/kg	75.5	38.1	143
		EP130: Azinphos Methyl	86-50-0	50 µg/kg	44.2	8.13	159
		EP130: Monocrotophos	6923-22-4	50 µg/kg	59.8	19.7	176
		EP130: Parathion	56-38-2	50 µg/kg	67.5	39.2	145
		EP130: Parathion-methyl	298-00-0	50 µg/kg	75.1	23.5	152
		EP130: Pirimphos-ethyl	23505-41-1	50 µg/kg	56.4	47.1	141
		EP130: Prothiofos	34643-46-4	50 µg/kg	55.1	36.1	148
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2652223)							
EP1210363-001	T10C01	EP130: Bromophos-ethyl	4824-78-6	50 µg/kg	68.8	36.9	142
		EP130: Carbophenothion	786-19-6	50 µg/kg	136	0.5	157
		EP130: Chlorfenvinphos (E)	18708-86-6	5 µg/kg	90.3	50.3	137
		EP130: Chlorfenvinphos (Z)	18708-87-7	50 µg/kg	87.6	55.9	152
		EP130: Chlorpyrifos	2921-88-2	50 µg/kg	108	49	140
		EP130: Chlorpyrifos-methyl	5598-13-0	50 µg/kg	122	28.1	142
		EP130: Demeton-S-methyl	919-86-8	50 µg/kg	50.7	36.6	172
		EP130: Diazinon	333-41-5	50 µg/kg	137	37.2	148
		EP130: Dichlorvos	62-73-7	50 µg/kg	77.0	32.7	153



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2652223) - continued							
EP1210363-001	T10C01	EP130: Dimethoate	60-51-5	50 µg/kg	81.1	33.2	150
		EP130: Ethion	563-12-2	50 µg/kg	123	44	146
		EP130: Fenamiphos	22224-92-6	50 µg/kg	51.5	3.08	162
		EP130: Fenthion	55-38-9	50 µg/kg	78.6	10.6	157
		EP130: Malathion	121-75-5	50 µg/kg	108	38.1	143
		EP130: Azinphos Methyl	86-50-0	50 µg/kg	122	8.13	159
		EP130: Monocrotophos	6923-22-4	50 µg/kg	61.3	19.7	176
		EP130: Parathion	56-38-2	50 µg/kg	106	39.2	145
		EP130: Parathion-methyl	298-00-0	50 µg/kg	124	23.5	152
		EP130: Pirimphos-ethyl	23505-41-1	50 µg/kg	105	47.1	141
		EP130: Prothiofos	34643-46-4	50 µg/kg	88.3	36.1	148
EP131A: Organochlorine Pesticides (QCLot: 2652221)							
EP1210303-001	Anonymous	EP131A: Aldrin	309-00-2	5 µg/kg	39.4	31.7	140
		EP131A: alpha-BHC	319-84-6	5 µg/kg	79.7	24.5	150
		EP131A: beta-BHC	319-85-7	5 µg/kg	79.5	36.9	139
		EP131A: delta-BHC	319-86-8	5 µg/kg	72.5	38.2	137
		EP131A: 4,4'-DDD	72-54-8	5 µg/kg	58.6	42.5	141
		EP131A: 4,4'-DDE	72-55-9	5 µg/kg	41.1	34.8	140
		EP131A: 4,4'-DDT	50-29-3	5 µg/kg	65.5	38	143
		EP131A: Dieldrin	60-57-1	5 µg/kg	46.2	43.2	134
		EP131A: alpha-Endosulfan	959-98-8	5 µg/kg	62.2	23.7	139
		EP131A: beta-Endosulfan	33213-65-9	5 µg/kg	73.6	35.8	138
		EP131A: Endosulfan sulfate	1031-07-8	5 µg/kg	68.2	7.45	158
		EP131A: Endrin	72-20-8	5 µg/kg	91.3	21.6	162
		EP131A: Endrin aldehyde	7421-93-4	5 µg/kg	58.4	19.3	131
		EP131A: Endrin ketone	53494-70-5	5 µg/kg	55.6	17.9	141
		EP131A: Heptachlor	76-44-8	5 µg/kg	# Not Determined	31	153
		EP131A: Heptachlor epoxide	1024-57-3	5 µg/kg	69.8	34.3	138
		EP131A: Hexachlorobenzene (HCB)	118-74-1	5 µg/kg	67.7	18.6	146
		EP131A: gamma-BHC	58-89-9	5 µg/kg	# Not Determined	30.7	145
		EP131A: Methoxychlor	72-43-5	5 µg/kg	73.9	15	157
		EP131A: cis-Chlordane	5103-71-9	5 µg/kg	63.4	22.3	145
EP131A: trans-Chlordane	5103-74-2	5 µg/kg	62.9	42.4	139		
EP131A: Organochlorine Pesticides (QCLot: 2652224)							
EP1210363-001	T10C01	EP131A: Aldrin	309-00-2	5 µg/kg	61.4	31.7	140
		EP131A: alpha-BHC	319-84-6	5 µg/kg	115	24.5	150
		EP131A: beta-BHC	319-85-7	5 µg/kg	89.5	36.9	139



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
EP131A: Organochlorine Pesticides (QCLot: 2652224) - continued							
EP1210363-001	T10C01	EP131A: delta-BHC	319-86-8	5 µg/kg	62.5	38.2	137
		EP131A: 4.4'-DDD	72-54-8	5 µg/kg	# Not Determined	42.5	141
		EP131A: 4.4'-DDE	72-55-9	5 µg/kg	# Not Determined	34.8	140
		EP131A: 4.4'-DDT	50-29-3	5 µg/kg	125	38	143
		EP131A: Dieldrin	60-57-1	5 µg/kg	97.5	43.2	134
		EP131A: alpha-Endosulfan	959-98-8	5 µg/kg	83.7	23.7	139
		EP131A: beta-Endosulfan	33213-65-9	5 µg/kg	94.6	35.8	138
		EP131A: Endosulfan sulfate	1031-07-8	5 µg/kg	131	7.45	158
		EP131A: Endrin	72-20-8	5 µg/kg	148	21.6	162
		EP131A: Endrin aldehyde	7421-93-4	5 µg/kg	74.1	19.3	131
		EP131A: Endrin ketone	53494-70-5	5 µg/kg	71.3	17.9	141
		EP131A: Heptachlor	76-44-8	5 µg/kg	87.5	31	153
		EP131A: Heptachlor epoxide	1024-57-3	5 µg/kg	97.4	34.3	138
		EP131A: Hexachlorobenzene (HCB)	118-74-1	5 µg/kg	131	18.6	146
		EP131A: gamma-BHC	58-89-9	5 µg/kg	116	30.7	145
		EP131A: Methoxychlor	72-43-5	5 µg/kg	73.8	15	157
		EP131A: cis-Chlordane	5103-71-9	5 µg/kg	77.2	22.3	145
EP131A: trans-Chlordane	5103-74-2	5 µg/kg	121	42.4	139		
EP131B: Polychlorinated Biphenyls (as Aroclors) (QCLot: 2652222)							
EP1210303-001	Anonymous	EP131B: Aroclor 1254	11097-69-1	50 µg/kg	68.8	61.3	121
EP131B: Polychlorinated Biphenyls (as Aroclors) (QCLot: 2652225)							
EP1210363-001	T10C01	EP131B: Aroclor 1254	11097-69-1	50 µg/kg	93.0	61.3	121
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2652216)							
EP1210303-001	Anonymous	EP132B-SD: Naphthalene	91-20-3	25 µg/kg	82.7	70	130
		EP132B-SD: 2-Methylnaphthalene	91-57-6	25 µg/kg	101	70	130
		EP132B-SD: Acenaphthylene	208-96-8	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Acenaphthene	83-32-9	25 µg/kg	109	70	130
		EP132B-SD: Fluorene	86-73-7	25 µg/kg	123	70	130
		EP132B-SD: Phenanthrene	85-01-8	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Anthracene	120-12-7	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Fluoranthene	206-44-0	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Pyrene	129-00-0	25 µg/kg	# Not Determined	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
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2652216) - continued							
EP1210303-001	Anonymous	EP132B-SD: Benz(a)anthracene	56-55-3	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Chrysene	218-01-9	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Benzo(b)fluoranthene	205-99-2	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Benzo(k)fluoranthene	207-08-9	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Benzo(e)pyrene	192-97-2	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Benzo(a)pyrene	50-32-8	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Perylene	198-55-0	25 µg/kg	84.1	70	130
		EP132B-SD: Benzo(g,h,i)perylene	191-24-2	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Dibenz(a,h)anthracene	53-70-3	25 µg/kg	97.7	70	130
		EP132B-SD: Indeno(1.2.3.cd)pyrene	193-39-5	25 µg/kg	115	70	130
EP132B-SD: Coronene	191-07-1	25 µg/kg	119	70	130		
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2652218)							
EP1210363-002	T12C01	EP132B-SD: Naphthalene	91-20-3	25 µg/kg	# Not Determined	70	130
		EP132B-SD: 2-Methylnaphthalene	91-57-6	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Acenaphthylene	208-96-8	25 µg/kg	# 66.1	70	130
		EP132B-SD: Acenaphthene	83-32-9	25 µg/kg	# 55.6	70	130
		EP132B-SD: Fluorene	86-73-7	25 µg/kg	# 40.5	70	130
		EP132B-SD: Phenanthrene	85-01-8	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Anthracene	120-12-7	25 µg/kg	# 67.6	70	130
		EP132B-SD: Fluoranthene	206-44-0	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Pyrene	129-00-0	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Benz(a)anthracene	56-55-3	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Chrysene	218-01-9	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Benzo(b)fluoranthene	205-99-2	25 µg/kg	# Not Determined	70	130



Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2652218) - continued							
EP1210363-002	T12C01	EP132B-SD: Benzo(k)fluoranthene	207-08-9	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Benzo(e)pyrene	192-97-2	25 µg/kg	# 138	70	130
		EP132B-SD: Benzo(a)pyrene	50-32-8	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Perylene	198-55-0	25 µg/kg	129	70	130
		EP132B-SD: Benzo(g,h,i)perylene	191-24-2	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Dibenz(a,h)anthracene	53-70-3	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Indeno(1.2.3.cd)pyrene	193-39-5	25 µg/kg	# Not Determined	70	130
		EP132B-SD: Coronene	191-07-1	25 µg/kg	# Not Determined	70	130
EP201: Carbamate Pesticides by LCMS (QCLot: 2649115)							
EP1210224-158	Anonymous	EP201: Oxamyl	23135-22-0	0.04 mg/kg	120	74	152
		EP201: Methomyl	16752-77-5	0.04 mg/kg	124	75	145
		EP201: 3-Hydroxy Carbofuran	16655-82-6	0.04 mg/kg	104	80	146
		EP201: Aldicarb	116-06-3	0.04 mg/kg	117	82	138
		EP201: Bendiocarb	22781-23-3	0.04 mg/kg	102	76	142
		EP201: Thiodicarb	59669-26-0	0.04 mg/kg	93.4	76	148
		EP201: Carbofuran	1563-66-2	0.04 mg/kg	104	78	140
		EP201: Carbaryl	63-25-2	0.04 mg/kg	102	63	139
		EP201: Methiocarb	2032-65-7	0.04 mg/kg	97.3	70	144
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2649128)							
EM1214634-001	Anonymous	EP202: Mecoprop	93-65-2	0.1 mg/kg	107	60	140
		EP202: MCPA	94-74-6	0.1 mg/kg	66.6	57	143
		EP202: 2,4-D	94-75-7	0.1 mg/kg	75.6	68	139
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	51.4	51	145
		EP202: 2,4,5-T	93-76-5	0.1 mg/kg	67.9	57	142
		EP202: Picloram	1918-02-1	0.1 mg/kg	89.5	49	138
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	66.8	59	149

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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**

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report			
Spike	Spike Recovery (%)	Recovery Limits (%)	RPDs (%)



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2646874)										
EP1210363-002	T12C01	EK026SF: Total Cyanide	57-12-5	200 mg/kg	103	----	70	130	----	----
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2646875)										
EP1210363-022	TZC02	EK026SF: Total Cyanide	57-12-5	200 mg/kg	112	----	70	130	----	----
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2647996)										
EP1210363-009	T17C01	EK057G: Nitrite as N (Sol.)	----	2.5 mg/kg	94.6	----	70	130	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2647997)										
EP1210363-009	T17C01	EK059G: Nitrite + Nitrate as N (Sol.)	----	2.5 mg/kg	97.5	----	70	130	----	----
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2647998)										
EP1210363-009	T17C01	EK071G: Reactive Phosphorus as P	----	2.5 mg/kg	128	----	70	130	----	----
EP201: Carbamate Pesticides by LCMS (QCLot: 2649115)										
EP1210224-158	Anonymous	EP201: Oxamyl	23135-22-0	0.04 mg/kg	120	----	74	152	----	----
		EP201: Methomyl	16752-77-5	0.04 mg/kg	124	----	75	145	----	----
		EP201: 3-Hydroxy Carbofuran	16655-82-6	0.04 mg/kg	104	----	80	146	----	----
		EP201: Aldicarb	116-06-3	0.04 mg/kg	117	----	82	138	----	----
		EP201: Bendiocarb	22781-23-3	0.04 mg/kg	102	----	76	142	----	----
		EP201: Thiodicarb	59669-26-0	0.04 mg/kg	93.4	----	76	148	----	----
		EP201: Carbofuran	1563-66-2	0.04 mg/kg	104	----	78	140	----	----
		EP201: Carbaryl	63-25-2	0.04 mg/kg	102	----	63	139	----	----
EP201: Methiocarb	2032-65-7	0.04 mg/kg	97.3	----	70	144	----	----		
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2649128)										
EM1214634-001	Anonymous	EP202: Mecoprop	93-65-2	0.1 mg/kg	107	----	60	140	----	----
		EP202: MCPA	94-74-6	0.1 mg/kg	66.6	----	57	143	----	----
		EP202: 2,4-D	94-75-7	0.1 mg/kg	75.6	----	68	139	----	----
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	51.4	----	51	145	----	----
		EP202: 2,4,5-T	93-76-5	0.1 mg/kg	67.9	----	57	142	----	----
		EP202: Picloram	1918-02-1	0.1 mg/kg	89.5	----	49	138	----	----
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	66.8	----	59	149	----	----
EK055: Ammonia as N (QCLot: 2650998)										
EP1210363-009	T17C01	EK055: Ammonia as N	7664-41-7	50 mg/kg	118	----	70	130	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2651010)										
EP1210363-009	T17C01	EK061G: Total Kjeldahl Nitrogen as N	----	500 mg/kg	110	----	70	130	----	----
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2651011)										
EP1210363-009	T17C01	EK067G: Total Phosphorus as P	----	100 mg/kg	123	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 2651070)										
EP1210363-002	T12C01	EG005T: Aluminium	7429-90-5	50 mg/kg	# Not Determined	----	70	130	----	----
		EG005T: Arsenic	7440-38-2	50 mg/kg	99.8	----	70	130	----	----



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EG005T: Total Metals by ICP-AES (QCLot: 2651070) - continued										
EP1210363-002	T12C01	EG005T: Chromium	7440-47-3	50 mg/kg	107	----	70	130	----	----
		EG005T: Copper	7440-50-8	50 mg/kg	112	----	70	130	----	----
		EG005T: Iron	7439-89-6	50 mg/kg	# Not Determined	----	70	130	----	----
		EG005T: Lead	7439-92-1	50 mg/kg	113	----	70	130	----	----
		EG005T: Manganese	7439-96-5	50 mg/kg	122	----	70	130	----	----
		EG005T: Molybdenum	7439-98-7	10 mg/kg	104	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	101	----	70	130	----	----
		EG005T: Selenium	7782-49-2	10 mg/kg	95.3	----	70	130	----	----
EG005T: Zinc	7440-66-6	50 mg/kg	123	----	70	130	----	----		
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2651071)										
EP1210363-002	T12C01	EG035T: Mercury	7439-97-6	10 mg/kg	91.4	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 2651072)										
EP1210363-022	TZC02	EG005T: Aluminium	7429-90-5	50 mg/kg	# Not Determined	----	70	130	----	----
		EG005T: Arsenic	7440-38-2	50 mg/kg	101	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	112	----	70	130	----	----
		EG005T: Copper	7440-50-8	50 mg/kg	114	----	70	130	----	----
		EG005T: Iron	7439-89-6	50 mg/kg	# Not Determined	----	70	130	----	----
		EG005T: Lead	7439-92-1	50 mg/kg	119	----	70	130	----	----
		EG005T: Manganese	7439-96-5	50 mg/kg	118	----	70	130	----	----
		EG005T: Molybdenum	7439-98-7	10 mg/kg	94.5	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	109	----	70	130	----	----
		EG005T: Selenium	7782-49-2	10 mg/kg	108	----	70	130	----	----
EG005T: Zinc	7440-66-6	50 mg/kg	126	----	70	130	----	----		
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2651073)										
EP1210363-022	TZC02	EG035T: Mercury	7439-97-6	10 mg/kg	114	----	70	130	----	----
EG020T: Total Metals by ICP-MS (QCLot: 2652115)										
EP1210363-002	T12C01	EG020Y-T: Cadmium	7440-43-9	50 mg/kg	102	----	70	130	----	----
EG020T: Total Metals by ICP-MS (QCLot: 2652116)										
EP1210363-022	TZC02	EG020Y-T: Cadmium	7440-43-9	50 mg/kg	105	----	70	130	----	----
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2652216)										
EP1210303-001	Anonymous	EP132B-SD: Naphthalene	91-20-3	25 µg/kg	82.7	----	70	130	----	----
		EP132B-SD: 2-Methylnaphthalene	91-57-6	25 µg/kg	101	----	70	130	----	----
		EP132B-SD: Acenaphthylene	208-96-8	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Acenaphthene	83-32-9	25 µg/kg	109	----	70	130	----	----



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2652216) - continued										
EP1210303-001	Anonymous	EP132B-SD: Fluorene	86-73-7	25 µg/kg	123	----	70	130	----	----
		EP132B-SD: Phenanthrene	85-01-8	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Anthracene	120-12-7	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Fluoranthene	206-44-0	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Pyrene	129-00-0	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Benz(a)anthracene	56-55-3	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Chrysene	218-01-9	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Benzo(b)fluoranthene	205-99-2	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Benzo(k)fluoranthene	207-08-9	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Benzo(e)pyrene	192-97-2	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Benzo(a)pyrene	50-32-8	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Perylene	198-55-0	25 µg/kg	84.1	----	70	130	----	----
		EP132B-SD: Benzo(g,h,i)perylene	191-24-2	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Dibenz(a,h)anthracene	53-70-3	25 µg/kg	97.7	----	70	130	----	----
		EP132B-SD: Indeno(1.2.3.cd)pyrene	193-39-5	25 µg/kg	115	----	70	130	----	----
EP132B-SD: Coronene	191-07-1	25 µg/kg	119	----	70	130	----	----		
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2652217)										
EP1210303-001	Anonymous	EP071-SD: C10 - C14 Fraction	----	19.75 mg/kg	71.6	----	70	130	----	----
		EP071-SD: C15 - C28 Fraction	----	87.25 mg/kg	96.2	----	70	130	----	----
		EP071-SD: C29 - C36 Fraction	----	60 mg/kg	107	----	70	130	----	----
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2652218)										
EP1210363-002	T12C01	EP132B-SD: Naphthalene	91-20-3	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: 2-Methylnaphthalene	91-57-6	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Acenaphthylene	208-96-8	25 µg/kg	# 66.1	----	70	130	----	----
		EP132B-SD: Acenaphthene	83-32-9	25 µg/kg	# 55.6	----	70	130	----	----
		EP132B-SD: Fluorene	86-73-7	25 µg/kg	# 40.5	----	70	130	----	----



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2652218) - continued										
EP1210363-002	T12C01	EP132B-SD: Phenanthrene	85-01-8	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Anthracene	120-12-7	25 µg/kg	# 67.6	----	70	130	----	----
		EP132B-SD: Fluoranthene	206-44-0	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Pyrene	129-00-0	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Benz(a)anthracene	56-55-3	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Chrysene	218-01-9	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Benzo(b)fluoranthene	205-99-2	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Benzo(k)fluoranthene	207-08-9	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Benzo(e)pyrene	192-97-2	25 µg/kg	# 138	----	70	130	----	----
		EP132B-SD: Benzo(a)pyrene	50-32-8	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Perylene	198-55-0	25 µg/kg	129	----	70	130	----	----
		EP132B-SD: Benzo(g,h,i)perylene	191-24-2	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Dibenz(a,h)anthracene	53-70-3	25 µg/kg	# Not Determined	----	70	130	----	----
		EP132B-SD: Indeno(1.2.3.cd)pyrene	193-39-5	25 µg/kg	# Not Determined	----	70	130	----	----
EP132B-SD: Coronene	191-07-1	25 µg/kg	# Not Determined	----	70	130	----	----		
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2652219)										
EP1210363-002	T12C01	EP071-SD: C10 - C14 Fraction	----	19.75 mg/kg	97.2	----	70	130	----	----
		EP071-SD: C15 - C28 Fraction	----	87.25 mg/kg	127	----	70	130	----	----
		EP071-SD: C29 - C36 Fraction	----	60 mg/kg	116	----	70	130	----	----
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2652220)										
EP1210303-001	Anonymous	EP130: Bromophos-ethyl	4824-78-6	50 µg/kg	67.9	----	36.9	142	----	----
		EP130: Carbophenothion	786-19-6	50 µg/kg	74.5	----	0.5	157	----	----
		EP130: Chlorfenvinphos (E)	18708-86-6	5 µg/kg	51.6	----	50.3	137	----	----
		EP130: Chlorfenvinphos (Z)	18708-87-7	50 µg/kg	61.6	----	55.9	152	----	----
		EP130: Chlorpyrifos	2921-88-2	50 µg/kg	66.9	----	49	140	----	----
		EP130: Chlorpyrifos-methyl	5598-13-0	50 µg/kg	69.2	----	28.1	142	----	----
		EP130: Demeton-S-methyl	919-86-8	50 µg/kg	37.9	----	36.6	172	----	----
		EP130: Diazinon	333-41-5	50 µg/kg	70.5	----	37.2	148	----	----



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2652220) - continued										
EP1210303-001	Anonymous	EP130: Dichlorvos	62-73-7	50 µg/kg	39.9	----	32.7	153	----	----
		EP130: Dimethoate	60-51-5	50 µg/kg	43.8	----	33.2	150	----	----
		EP130: Ethion	563-12-2	50 µg/kg	62.6	----	44	146	----	----
		EP130: Fenamiphos	22224-92-6	50 µg/kg	49.5	----	3.08	162	----	----
		EP130: Fenthion	55-38-9	50 µg/kg	28.7	----	10.6	157	----	----
		EP130: Malathion	121-75-5	50 µg/kg	75.5	----	38.1	143	----	----
		EP130: Azinphos Methyl	86-50-0	50 µg/kg	44.2	----	8.13	159	----	----
		EP130: Monocrotophos	6923-22-4	50 µg/kg	59.8	----	19.7	176	----	----
		EP130: Parathion	56-38-2	50 µg/kg	67.5	----	39.2	145	----	----
		EP130: Parathion-methyl	298-00-0	50 µg/kg	75.1	----	23.5	152	----	----
		EP130: Pirimphos-ethyl	23505-41-1	50 µg/kg	56.4	----	47.1	141	----	----
		EP130: Prothiofos	34643-46-4	50 µg/kg	55.1	----	36.1	148	----	----
EP131A: Organochlorine Pesticides (QCLot: 2652221)										
EP1210303-001	Anonymous	EP131A: Aldrin	309-00-2	5 µg/kg	39.4	----	31.7	140	----	----
		EP131A: alpha-BHC	319-84-6	5 µg/kg	79.7	----	24.5	150	----	----
		EP131A: beta-BHC	319-85-7	5 µg/kg	79.5	----	36.9	139	----	----
		EP131A: delta-BHC	319-86-8	5 µg/kg	72.5	----	38.2	137	----	----
		EP131A: 4.4'-DDD	72-54-8	5 µg/kg	58.6	----	42.5	141	----	----
		EP131A: 4.4'-DDE	72-55-9	5 µg/kg	41.1	----	34.8	140	----	----
		EP131A: 4.4'-DDT	50-29-3	5 µg/kg	65.5	----	38	143	----	----
		EP131A: Dieldrin	60-57-1	5 µg/kg	46.2	----	43.2	134	----	----
		EP131A: alpha-Endosulfan	959-98-8	5 µg/kg	62.2	----	23.7	139	----	----
		EP131A: beta-Endosulfan	33213-65-9	5 µg/kg	73.6	----	35.8	138	----	----
		EP131A: Endosulfan sulfate	1031-07-8	5 µg/kg	68.2	----	7.45	158	----	----
		EP131A: Endrin	72-20-8	5 µg/kg	91.3	----	21.6	162	----	----
		EP131A: Endrin aldehyde	7421-93-4	5 µg/kg	58.4	----	19.3	131	----	----
		EP131A: Endrin ketone	53494-70-5	5 µg/kg	55.6	----	17.9	141	----	----
		EP131A: Heptachlor	76-44-8	5 µg/kg	# Not Determined	----	31	153	----	----
		EP131A: Heptachlor epoxide	1024-57-3	5 µg/kg	69.8	----	34.3	138	----	----
		EP131A: Hexachlorobenzene (HCB)	118-74-1	5 µg/kg	67.7	----	18.6	146	----	----
		EP131A: gamma-BHC	58-89-9	5 µg/kg	# Not Determined	----	30.7	145	----	----
		EP131A: Methoxychlor	72-43-5	5 µg/kg	73.9	----	15	157	----	----
		EP131A: cis-Chlordane	5103-71-9	5 µg/kg	63.4	----	22.3	145	----	----
		EP131A: trans-Chlordane	5103-74-2	5 µg/kg	62.9	----	42.4	139	----	----
EP131B: Polychlorinated Biphenyls (as Aroclors) (QCLot: 2652222)										
EP1210303-001	Anonymous	EP131B: Aroclor 1254	11097-69-1	50 µg/kg	68.8	----	61.3	121	----	----
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2652223)										



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2652223) - continued										
EP1210363-001	T10C01	EP130: Bromophos-ethyl	4824-78-6	50 µg/kg	68.8	----	36.9	142	----	----
		EP130: Carbophenothion	786-19-6	50 µg/kg	136	----	0.5	157	----	----
		EP130: Chlorfenvinphos (E)	18708-86-6	5 µg/kg	90.3	----	50.3	137	----	----
		EP130: Chlorfenvinphos (Z)	18708-87-7	50 µg/kg	87.6	----	55.9	152	----	----
		EP130: Chlorpyrifos	2921-88-2	50 µg/kg	108	----	49	140	----	----
		EP130: Chlorpyrifos-methyl	5598-13-0	50 µg/kg	122	----	28.1	142	----	----
		EP130: Demeton-S-methyl	919-86-8	50 µg/kg	50.7	----	36.6	172	----	----
		EP130: Diazinon	333-41-5	50 µg/kg	137	----	37.2	148	----	----
		EP130: Dichlorvos	62-73-7	50 µg/kg	77.0	----	32.7	153	----	----
		EP130: Dimethoate	60-51-5	50 µg/kg	81.1	----	33.2	150	----	----
		EP130: Ethion	563-12-2	50 µg/kg	123	----	44	146	----	----
		EP130: Fenamiphos	22224-92-6	50 µg/kg	51.5	----	3.08	162	----	----
		EP130: Fenthion	55-38-9	50 µg/kg	78.6	----	10.6	157	----	----
		EP130: Malathion	121-75-5	50 µg/kg	108	----	38.1	143	----	----
		EP130: Azinphos Methyl	86-50-0	50 µg/kg	122	----	8.13	159	----	----
		EP130: Monocrotophos	6923-22-4	50 µg/kg	61.3	----	19.7	176	----	----
		EP130: Parathion	56-38-2	50 µg/kg	106	----	39.2	145	----	----
		EP130: Parathion-methyl	298-00-0	50 µg/kg	124	----	23.5	152	----	----
EP130: Pirimphos-ethyl	23505-41-1	50 µg/kg	105	----	47.1	141	----	----		
EP130: Prothiofos	34643-46-4	50 µg/kg	88.3	----	36.1	148	----	----		
EP131A: Organochlorine Pesticides (QCLot: 2652224)										
EP1210363-001	T10C01	EP131A: Aldrin	309-00-2	5 µg/kg	61.4	----	31.7	140	----	----
		EP131A: alpha-BHC	319-84-6	5 µg/kg	115	----	24.5	150	----	----
		EP131A: beta-BHC	319-85-7	5 µg/kg	89.5	----	36.9	139	----	----
		EP131A: delta-BHC	319-86-8	5 µg/kg	62.5	----	38.2	137	----	----
		EP131A: 4.4'-DDD	72-54-8	5 µg/kg	# Not Determined	----	42.5	141	----	----
		EP131A: 4.4'-DDE	72-55-9	5 µg/kg	# Not Determined	----	34.8	140	----	----
		EP131A: 4.4'-DDT	50-29-3	5 µg/kg	125	----	38	143	----	----
		EP131A: Dieldrin	60-57-1	5 µg/kg	97.5	----	43.2	134	----	----
		EP131A: alpha-Endosulfan	959-98-8	5 µg/kg	83.7	----	23.7	139	----	----
		EP131A: beta-Endosulfan	33213-65-9	5 µg/kg	94.6	----	35.8	138	----	----
		EP131A: Endosulfan sulfate	1031-07-8	5 µg/kg	131	----	7.45	158	----	----
		EP131A: Endrin	72-20-8	5 µg/kg	148	----	21.6	162	----	----
		EP131A: Endrin aldehyde	7421-93-4	5 µg/kg	74.1	----	19.3	131	----	----
		EP131A: Endrin ketone	53494-70-5	5 µg/kg	71.3	----	17.9	141	----	----
		EP131A: Heptachlor	76-44-8	5 µg/kg	87.5	----	31	153	----	----
		EP131A: Heptachlor epoxide	1024-57-3	5 µg/kg	97.4	----	34.3	138	----	----
		EP131A: Hexachlorobenzene (HCB)	118-74-1	5 µg/kg	131	----	18.6	146	----	----



Sub-Matrix: SOIL

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP131A: Organochlorine Pesticides (QCLot: 2652224) - continued										
EP1210363-001	T10C01	EP131A: gamma-BHC	58-89-9	5 µg/kg	116	----	30.7	145	----	----
		EP131A: Methoxychlor	72-43-5	5 µg/kg	73.8	----	15	157	----	----
		EP131A: cis-Chlordane	5103-71-9	5 µg/kg	77.2	----	22.3	145	----	----
		EP131A: trans-Chlordane	5103-74-2	5 µg/kg	121	----	42.4	139	----	----
EP131B: Polychlorinated Biphenyls (as Aroclors) (QCLot: 2652225)										
EP1210363-001	T10C01	EP131B: Aroclor 1254	11097-69-1	50 µg/kg	93.0	----	61.3	121	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 2653984)										
EP1210363-002	T12C01	EP075(SIM): Phenol	108-95-2	10 mg/kg	82.4	----	73.4	135	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	80.6	----	71.7	136	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	85.1	----	62.8	137	----	----
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	10 mg/kg	85.2	----	73.6	128	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	29.7	----	18.0	152	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 2654048)										
EP1210363-022	TZC02	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.4	----	73.4	135	----	----
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	78.0	----	71.7	136	----	----
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	87.4	----	62.8	137	----	----
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	10 mg/kg	77.4	----	73.6	128	----	----
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	66.7	----	18.0	152	----	----
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2655583)										
EP1210363-002	T12C01	EP080-SD: C6 - C9 Fraction	----	32.5 mg/kg	106	----	70	130	----	----
EP080-SD: BTEXN (QCLot: 2655583)										
EP1210363-002	T12C01	EP080-SD: Benzene	71-43-2	2.5 mg/kg	80.9	----	70	130	----	----
		EP080-SD: Toluene	108-88-3	2.5 mg/kg	73.5	----	70	130	----	----
		EP080-SD: Ethylbenzene	100-41-4	2.5 mg/kg	75.7	----	70	130	----	----
		EP080-SD: meta- & para-Xylene	108-38-3	2.5 mg/kg	77.6	----	70	130	----	----
		EP080-SD: ortho-Xylene	106-42-3	2.5 mg/kg	80.9	----	70	130	----	----
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2655588)										
EP1210363-009	T17C01	EP074: Benzene	71-43-2	2.5 mg/kg	# 47.7	----	70	130	----	----
		EP074: Toluene	108-88-3	2.5 mg/kg	# 65.8	----	70	130	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 2655588)										
EP1210363-009	T17C01	EP074: 1,1-Dichloroethene	75-35-4	2.5 mg/kg	# 23.2	----	70	130	----	----
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	# 43.3	----	70	130	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 2655588)										
EP1210363-009	T17C01	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	# 57.3	----	70	130	----	----
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 2655589)										
EP1210363-009	T17C01	EP080-SD: C6 - C9 Fraction	----	32.5 mg/kg	107	----	70	130	----	----



Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
				Concentration	MS	MSD	Low	High	Value	Control Limit
EP080-SD: BTEXN (QCLot: 2655589)										
EP1210363-009	T17C01	EP080-SD: Benzene	71-43-2	2.5 mg/kg	# 63.6	----	70	130	----	----
		EP080-SD: Toluene	108-88-3	2.5 mg/kg	# 65.4	----	70	130	----	----
		EP080-SD: Ethylbenzene	100-41-4	2.5 mg/kg	76.6	----	70	130	----	----
		EP080-SD: meta- & para-Xylene	108-38-3	2.5 mg/kg	76.8	----	70	130	----	----
			106-42-3							
		EP080-SD: ortho-Xylene	95-47-6	2.5 mg/kg	77.9	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: EP1210363	Page	: 1 of 21
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: JOSH ABBOTT	Contact	: Scott James
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: josh.abbott@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: I12147	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Burswood Stadium	Date Samples Received	: 12-DEC-2012
C-O-C number	: ----	Issue Date	: 08-JAN-2013
Sampler	: JA & AJ	No. of samples received	: 27
Order number	: ----	No. of samples analysed	: 27
Quote number	: EP/689/12 V4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

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	
EA029-B: Acidity Trail								
Snap Lock Bag - frozen (EA029-TPA) T14A, T19A, TZA01	T15A, T20A,	11-DEC-2012	12-DEC-2012	11-DEC-2013	✓	20-DEC-2012	12-MAR-2013	✓
EA029-A: pH Measurements								
Snap Lock Bag - frozen (EA029-TPA) T14A, T19A, TZA01	T15A, T20A,	11-DEC-2012	12-DEC-2012	11-DEC-2013	✓	20-DEC-2012	12-MAR-2013	✓
EA033-E: Acid Base Accounting								
Snap Lock Bag - frozen (EA033) T14A, T19A, TZA01	T15A, T20A,	11-DEC-2012	12-DEC-2012	11-DEC-2013	✓	28-DEC-2012	12-MAR-2013	✓
EA033-C: Acid Neutralising Capacity								
Snap Lock Bag - frozen (EA033) T14A, T19A, TZA01	T15A, T20A,	11-DEC-2012	12-DEC-2012	11-DEC-2013	✓	28-DEC-2012	12-MAR-2013	✓
EA033-A: Actual Acidity								
Snap Lock Bag - frozen (EA033) T14A, T19A, TZA01	T15A, T20A,	11-DEC-2012	12-DEC-2012	11-DEC-2013	✓	28-DEC-2012	12-MAR-2013	✓
EA033-B: Potential Acidity								
Snap Lock Bag - frozen (EA033) T14A, T19A, TZA01	T15A, T20A,	11-DEC-2012	12-DEC-2012	11-DEC-2013	✓	28-DEC-2012	12-MAR-2013	✓



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	
EA033-D: Retained Acidity								
Snap Lock Bag - frozen (EA033) T14A, T19A, TZA01	T15A, T20A,	11-DEC-2012	12-DEC-2012	11-DEC-2013	✓	28-DEC-2012	12-MAR-2013	✓
EA038: Acid Volatile Sulfur								
Snap Lock Bag - frozen (EA038) T14A, T19A, TZA01	T15A, T20A,	11-DEC-2012	---	---	---	04-JAN-2013	11-DEC-2013	✓
EA055: Moisture Content								
Snap Lock Bag - frozen (EA055-103) T14A, T19A, TZA01	T15A, T20A,	11-DEC-2012	---	---	---	17-DEC-2012	25-DEC-2012	✓
Soil Glass Jar - Unpreserved (EA055-103) T10C01, T14C01, T14C03, T15C02, T17C01, T18C01, T18C03, T19C02, T20C02, T23C01, TZC01,	T12C01, T14C02, T15C01, T16C01, T17C02, T18C02, T19C01, T20C01, T22C01, T24C01, TZC02	11-DEC-2012	---	---	---	13-DEC-2012	25-DEC-2012	✓
EA150: Particle Sizing								
Snap Lock Bag (EA150H) T14C02, T18C02, T19C02, T24C01	T15C01, T18C03, T20C02,	11-DEC-2012	---	09-JUN-2013	---	04-JAN-2013	09-JUN-2013	✓
EA150: Soil Classification based on Particle Size								
Snap Lock Bag (EA150H) T14C02, T18C02, T19C02, T24C01	T15C01, T18C03, T20C02,	11-DEC-2012	---	09-JUN-2013	---	04-JAN-2013	09-JUN-2013	✓



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	
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Snap Lock Bag (EA200)								
T10C01, T14C01, T14C03, T15C02, T17C01, T18C01, T18C03, T19C02, T20C02, T23C01, TZC01,	T12C01, T14C02, T15C01, T16C01, T17C02, T18C02, T19C01, T20C01, T22C01, T24C01, TZC02	11-DEC-2012	---	09-JUN-2013	----	04-JAN-2013	03-JUL-2013	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
T10C01, T14C01, T14C03, T15C02, T17C01, T18C01, T18C03, T19C02, T20C02, T23C01, TZC01,	T12C01, T14C02, T15C01, T16C01, T17C02, T18C02, T19C01, T20C01, T22C01, T24C01, TZC02	11-DEC-2012	17-DEC-2012	09-JUN-2013	✓	18-DEC-2012	09-JUN-2013	✓
EG020T: Total Metals by ICP-MS								
Soil Glass Jar - Unpreserved (EG020Y-T)								
T10C01, T14C01, T14C03, T15C02, T17C01, T18C01, T18C03, T19C02, T20C02, T23C01, TZC01,	T12C01, T14C02, T15C01, T16C01, T17C02, T18C02, T19C01, T20C01, T22C01, T24C01, TZC02	11-DEC-2012	17-DEC-2012	09-JUN-2013	✓	21-DEC-2012	09-JUN-2013	✓



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)								
T10C01, T12C01, T14C01, T14C02, T14C03, T15C01, T15C02, T16C01, T17C01, T17C02, T18C01, T18C02, T18C03, T19C01, T19C02, T20C01, T20C02, T22C01, T23C01, T24C01, T2C01, T2C02	11-DEC-2012	17-DEC-2012	08-JAN-2013	✓	18-DEC-2012	08-JAN-2013	✓	
EK026SF: Total CN by Segmented Flow Analyser								
Soil Glass Jar - Unpreserved (EK026SF)								
T10C01, T12C01, T14C01, T14C02, T14C03, T15C01, T15C02, T16C01, T17C01, T17C02, T18C01, T18C02, T18C03, T19C01, T19C02, T20C01, T20C02, T22C01, T23C01, T24C01, T2C01, T2C02	11-DEC-2012	17-DEC-2012	18-DEC-2012	✓	19-DEC-2012	02-JAN-2013	✓	
EK055: Ammonia as N								
Soil Glass Jar - Unpreserved (EK055)								
T10C01, T17C01, T19C02, T2C01, T2C02	11-DEC-2012	----	----	----	31-DEC-2012	09-JUN-2013	✓	
EK057G: Nitrite as N by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK057G)								
T10C01, T17C01, T19C02, T2C01, T2C02	11-DEC-2012	14-DEC-2012	09-JUN-2013	✓	14-DEC-2012	09-JUN-2013	✓	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK059G)								
T10C01, T17C01, T19C02, T2C01, T2C02	11-DEC-2012	14-DEC-2012	09-JUN-2013	✓	14-DEC-2012	09-JUN-2013	✓	



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) T10C01, T19C02, TZC02	T17C01, TZC01,	11-DEC-2012	17-DEC-2012	09-JUN-2013	✔	19-DEC-2012	09-JUN-2013	✔
EK067G: Total Phosphorus as P by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK067G) T10C01, T19C02, TZC02	T17C01, TZC01,	11-DEC-2012	17-DEC-2012	09-JUN-2013	✔	19-DEC-2012	09-JUN-2013	✔
EK071G: Reactive Phosphorus as P by discrete analyser								
Soil Glass Jar - Unpreserved (EK071G) T10C01, T19C02, TZC02	T17C01, TZC01,	11-DEC-2012	14-DEC-2012	09-JUN-2013	✔	14-DEC-2012	09-JUN-2013	✔
EP003: Total Organic Carbon (TOC) in Soil								
Snap Lock Bag (EP003) T20C02		11-DEC-2012	24-DEC-2012	18-DEC-2012	✖	24-DEC-2012	21-JAN-2013	✔
Soil Glass Jar - Unpreserved (EP003) T10C01, T14C01, T14C03, T15C02, T17C01, T18C01, T18C03, T19C02, T22C01, T24C01, TZC02	T12C01, T14C02, T15C01, T16C01, T17C02, T18C02, T19C01, T20C01, T23C01, TZC01,	11-DEC-2012	24-DEC-2012	18-DEC-2012	✖	24-DEC-2012	21-JAN-2013	✔



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-SD / EP071-SD: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071-SD)								
T10C01, T14C01, T14C03, T15C02, T17C01, T18C01, T18C03, T19C02, T20C02, T23C01,	T12C01, T14C02, T15C01, T16C01, T17C02, T18C02, T19C01, T20C01, T22C01, T24C01	11-DEC-2012	18-DEC-2012	25-DEC-2012	✓	04-JAN-2013	27-JAN-2013	✓
Soil Glass Jar - Unpreserved (EP071-SD)								
TZC01,	TZC02	11-DEC-2012	18-DEC-2012	25-DEC-2012	✓	21-DEC-2012	27-JAN-2013	✓
EP074D: Fumigants								
Soil Glass Jar - Unpreserved (EP074)								
T10C01, T23C01, TZC01,	T17C01, T24C01, TZC02	11-DEC-2012	19-DEC-2012	25-DEC-2012	✓	20-DEC-2012	25-DEC-2012	✓
EP074E: Halogenated Aliphatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
T10C01, T23C01, TZC01,	T17C01, T24C01, TZC02	11-DEC-2012	19-DEC-2012	25-DEC-2012	✓	20-DEC-2012	25-DEC-2012	✓
EP074F: Halogenated Aromatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
T10C01, T23C01, TZC01,	T17C01, T24C01, TZC02	11-DEC-2012	19-DEC-2012	25-DEC-2012	✓	20-DEC-2012	25-DEC-2012	✓
EP074A: Monocyclic Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074)								
T10C01, T23C01, TZC01,	T17C01, T24C01, TZC02	11-DEC-2012	19-DEC-2012	25-DEC-2012	✓	20-DEC-2012	25-DEC-2012	✓
EP074H: Naphthalene								
Soil Glass Jar - Unpreserved (EP074)								
T10C01, T23C01, TZC01,	T17C01, T24C01, TZC02	11-DEC-2012	19-DEC-2012	25-DEC-2012	✓	20-DEC-2012	25-DEC-2012	✓



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	
EP074B: Oxygenated Compounds								
Soil Glass Jar - Unpreserved (EP074) T10C01, T23C01, TZC01	T17C01, T24C01, TZC02	11-DEC-2012	19-DEC-2012	25-DEC-2012	✓	20-DEC-2012	25-DEC-2012	✓
EP074C: Sulfonated Compounds								
Soil Glass Jar - Unpreserved (EP074) T10C01, T23C01, TZC01	T17C01, T24C01, TZC02	11-DEC-2012	19-DEC-2012	25-DEC-2012	✓	20-DEC-2012	25-DEC-2012	✓
EP074G: Trihalomethanes								
Soil Glass Jar - Unpreserved (EP074) T10C01, T23C01, TZC01	T17C01, T24C01, TZC02	11-DEC-2012	19-DEC-2012	25-DEC-2012	✓	20-DEC-2012	25-DEC-2012	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) T10C01, T14C01, T14C03, T15C02, T17C01, T18C01, T18C03, T19C02, T20C02, T23C01	T12C01, T14C02, T15C01, T16C01, T17C02, T18C02, T19C01, T20C01, T22C01, T24C01	11-DEC-2012	14-DEC-2012	25-DEC-2012	✓	20-DEC-2012	27-JAN-2013	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) TZC01	TZC02	11-DEC-2012	18-DEC-2012	25-DEC-2012	✓	19-DEC-2012	27-JAN-2013	✓
EP080-SD: BTEXN								
Soil Glass Jar - Unpreserved (EP080-SD) T10C01, T14C01, T14C03, T15C02, T17C01, T18C01, T18C03, T19C02, T20C02, T23C01, TZC01	T12C01, T14C02, T15C01, T16C01, T17C02, T18C02, T19C01, T20C01, T22C01, T24C01, TZC02	11-DEC-2012	19-DEC-2012	25-DEC-2012	✓	20-DEC-2012	25-DEC-2012	✓



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-SD / EP071-SD: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080-SD)								
T10C01, T14C01, T14C03, T15C02, T17C01, T18C01, T18C03, T19C02, T20C02, T23C01, TZC01,	T12C01, T14C02, T15C01, T16C01, T17C02, T18C02, T19C01, T20C01, T22C01, T24C01, TZC02	11-DEC-2012	19-DEC-2012	25-DEC-2012	✓	20-DEC-2012	25-DEC-2012	✓
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Soil Glass Jar - Unpreserved (EP130)								
T10C01, T14C01, T14C03, T15C02, T17C01, T18C01, T18C03, T19C02, T20C02, T23C01,	T12C01, T14C02, T15C01, T16C01, T17C02, T18C02, T19C01, T20C01, T22C01, T24C01	11-DEC-2012	18-DEC-2012	25-DEC-2012	✓	04-JAN-2013	27-JAN-2013	✓
Soil Glass Jar - Unpreserved (EP130) TZC01,	TZC02	11-DEC-2012	18-DEC-2012	25-DEC-2012	✓	22-DEC-2012	27-JAN-2013	✓
EP131A: Organochlorine Pesticides								
Soil Glass Jar - Unpreserved (EP131A)								
T10C01, T14C01, T14C03, T15C02, T17C01, T18C01, T18C03, T19C02, T20C02, T23C01,	T12C01, T14C02, T15C01, T16C01, T17C02, T18C02, T19C01, T20C01, T22C01, T24C01	11-DEC-2012	18-DEC-2012	25-DEC-2012	✓	04-JAN-2013	27-JAN-2013	✓
Soil Glass Jar - Unpreserved (EP131A) TZC01,	TZC02	11-DEC-2012	18-DEC-2012	25-DEC-2012	✓	22-DEC-2012	27-JAN-2013	✓



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	
EP131B: Polychlorinated Biphenyls (as Aroclors)								
Soil Glass Jar - Unpreserved (EP131B)								
T10C01, T12C01, T14C01, T14C02, T14C03, T15C01, T15C02, T16C01, T17C01, T17C02, T18C01, T18C02, T18C03, T19C01, T19C02, T20C01, T20C02, T22C01, T23C01, T24C01	11-DEC-2012	18-DEC-2012	25-DEC-2012	✓	04-JAN-2013	27-JAN-2013	✓	
Soil Glass Jar - Unpreserved (EP131B)								
TZC01, TZC02	11-DEC-2012	18-DEC-2012	25-DEC-2012	✓	22-DEC-2012	27-JAN-2013	✓	
EP132B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP132B-SD)								
T10C01, T12C01, T14C01, T14C02, T14C03, T15C01, T15C02, T16C01, T17C01, T17C02, T18C01, T18C02, T18C03, T19C01, T19C02, T20C01, T20C02, T22C01, T23C01, T24C01	11-DEC-2012	18-DEC-2012	25-DEC-2012	✓	04-JAN-2013	27-JAN-2013	✓	
Soil Glass Jar - Unpreserved (EP132B-SD)								
TZC01, TZC02	11-DEC-2012	18-DEC-2012	25-DEC-2012	✓	22-DEC-2012	27-JAN-2013	✓	
EP201: Carbamate Pesticides by LCMS								
Soil Glass Jar - Unpreserved (EP201)								
T10C01, T17C01, T23C01, T24C01, TZC01, TZC02	11-DEC-2012	17-DEC-2012	25-DEC-2012	✓	17-DEC-2012	26-JAN-2013	✓	
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
Soil Glass Jar - Unpreserved (EP202)								
T10C01, T17C01, T23C01, T24C01, TZC01, TZC02	11-DEC-2012	18-DEC-2012	25-DEC-2012	✓	18-DEC-2012	27-JAN-2013	✓	



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(where) 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	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Acid Volatile Sulfur	EA038	1	5	20.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Buchi Ammonia	EK055	2	12	16.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	2	14	14.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chromium Suite for Acid Sulphate Soils	EA033	1	5	20.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	4	27	14.8	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	5	20.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	5	20.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organochlorine Pesticides (Ultra-trace)	EP131A	4	34	11.8	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organophosphorus Pesticides (Ultra-trace)	EP130	4	34	11.8	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	3	33.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAHs in Sediments by GCMS(SIM)	EP132B-SD	4	34	11.8	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	4	34	11.8	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	9	11.1	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-Soluble By Discrete Analyser	EK071G	1	5	20.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029-TPA	1	5	20.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TKN as N By Discrete Analyser	EK061G	2	12	16.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	3	22	13.6	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	3	22	13.6	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	3	22	13.6	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite Y	EG020Y-T	3	22	13.6	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	3	22	13.6	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus By Discrete Analyser	EK067G	2	12	16.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071-SD	4	34	11.8	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	16	12.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX in Sediments	EP080-SD	3	22	13.6	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Acid Volatile Sulfur	EA038	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Buchi Ammonia	EK055	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chromium Suite for Acid Sulphate Soils	EA033	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Control Samples (LCS) - Continued							
Organochlorine Pesticides (Ultra-trace)	EP131A	2	34	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organophosphorus Pesticides (Ultra-trace)	EP130	2	34	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	23	8.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAHs in Sediments by GCMS(SIM)	EP132B-SD	2	34	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	2	34	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	9	11.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-Soluble By Discrete Analyser	EK071G	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TKN as N By Discrete Analyser	EK061G	2	12	16.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	2	22	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	22	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	22	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite Y	EG020Y-T	2	22	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP003	2	22	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus By Discrete Analyser	EK067G	2	12	16.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071-SD	2	34	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	16	6.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX in Sediments	EP080-SD	2	22	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Acid Volatile Sulfur	EA038	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Buchi Ammonia	EK055	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chromium Suite for Acid Sulphate Soils	EA033	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organochlorine Pesticides (Ultra-trace)	EP131A	2	34	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organophosphorus Pesticides (Ultra-trace)	EP130	2	34	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	23	8.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAHs in Sediments by GCMS(SIM)	EP132B-SD	2	34	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	2	34	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	9	11.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-Soluble By Discrete Analyser	EK071G	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029-TPA	1	5	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TKN as N By Discrete Analyser	EK061G	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	2	22	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	22	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	22	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite Y	EG020Y-T	2	22	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement



Matrix: **SOIL** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
Total Organic Carbon	EP003	2	22	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus By Discrete Analyser	EK067G	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071-SD	2	34	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	16	6.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX in Sediments	EP080-SD	2	22	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Buchi Ammonia	EK055	1	12	8.3	5.0	✓	ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	14	7.1	5.0	✓	ALS QCS3 requirement
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	5	20.0	5.0	✓	ALS QCS3 requirement
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	5	20.0	5.0	✓	ALS QCS3 requirement
Organochlorine Pesticides (Ultra-trace)	EP131A	2	34	5.9	5.0	✓	ALS QCS3 requirement
Organophosphorus Pesticides (Ultra-trace)	EP130	2	34	5.9	5.0	✓	ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	23	8.7	5.0	✓	ALS QCS3 requirement
PAHs in Sediments by GCMS(SIM)	EP132B-SD	2	34	5.9	5.0	✓	ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	2	34	5.9	5.0	✓	ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	9	11.1	5.0	✓	ALS QCS3 requirement
Reactive Phosphorus as P-Soluble By Discrete Analyser	EK071G	1	5	20.0	5.0	✓	ALS QCS3 requirement
TKN as N By Discrete Analyser	EK061G	1	12	8.3	5.0	✓	ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	2	22	9.1	5.0	✓	ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	22	9.1	5.0	✓	ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	22	9.1	5.0	✓	ALS QCS3 requirement
Total Metals by ICP-MS - Suite Y	EG020Y-T	2	22	9.1	5.0	✓	ALS QCS3 requirement
Total Phosphorus By Discrete Analyser	EK067G	1	12	8.3	5.0	✓	ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071-SD	2	34	5.9	5.0	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	16	6.3	5.0	✓	ALS QCS3 requirement
TPH Volatiles/BTEX in Sediments	EP080-SD	2	22	9.1	5.0	✓	ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	6	16.7	5.0	✓	ALS QCS3 requirement



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
Suspension Peroxide Oxidation-Combined Acidity and Sulphate	EA029-TPA	SOIL	Ahern et al 2004 - a suspension peroxide oxidation method following the 'sulfur trail' by determining the level of 1M KCL extractable sulfur and the sulfur level after oxidation of soil sulphides. The 'acidity trail' is followed by measurement of TAA, TPA and TSA. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Chromium Suite for Acid Sulphate Soils	EA033	SOIL	Ahern et al 2004. This method covers the determination of Chromium Reducible Sulfur (SCR); pHKCl; titratable actual acidity (TAA); acid neutralising capacity by back titration (ANC); and net acid soluble sulfur (SNAS) which incorporates peroxide sulfur. It applies to soils and sediments (including sands) derived from coastal regions. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Acid Volatile Sulfur	EA038	SOIL	Sullivan et al (1998). The AVS method converts reduced inorganic Sulfur to H ₂ S by way of a cold 12MHCl acid digest; the evolved H ₂ S is trapped in a Zinc Acetate solution as ZnS which is quantified by iodometric titration.
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2010 Draft) 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
Asbestos Identification in bulk solids	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples
Asbestos - Quantitative Analysis	* EA200O	SOIL	Estimation of Asbestos content with Confirmation of Identification by AS 4964 - 2004 Asbestos
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) 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 (1999) Schedule B(3)
Total Metals by ICP-MS - Suite Y	EG020Y-T	SOIL	(APHA 21st ed., 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	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(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 SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	APHA 4500-CN-O. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
Buchi Ammonia	EK055	SOIL	APHA 21st ed., 4500 NH3+-B&G, H Samples are steam distilled (Buchi) prior to analysis and quantified using titration, FIA or Discrete Analyser.
Nitrite as N - Soluble by Discrete Analyser	EK057G	SOIL	APHA 21st ed., 4500 NO3- B. Nitrite in a water extract is determined by direct colourimetry by Discrete Analyser.
Nitrate as N - Soluble by Discrete Analyser	EK058G	SOIL	APHA 21st ed., 4500 NO3--F. Nitrate in the 1:5 soil:water extract 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.
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	SOIL	APHA 21st ed., 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	APHA 21st ed., 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	APHA 21st ed., 4500 Norg/NO3- Total Nitrogen is determined as the sum of TKN and Oxidised Nitrogen, each determined seperately as N.
Total Phosporus By Discrete Analyser	EK067G	SOIL	APHA 21st ed., 4500 P-B&F This procedure involves sulfuric acid digestion and quantification using Discrete Analyser.
Reactive Phosphorus as P-Soluble By Discrete Analyser	EK071G	SOIL	APHA 21st ed., 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 (1999) Schedule B(3) (Appdx. 2
Total Organic Carbon	EP003	SOIL	In-house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO2) is automatically measured by infra-red detector.
TPH - Semivolatle Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (1999) Schedule B(3) (Method 506.1)
TPH - Semivolatle Fraction	EP071-SD	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Method 504)
Volatile Organic Compounds	EP074	SOIL	(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. This method is compliant with NEPM (1999) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) 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 (1999) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(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. This method is compliant with NEPM (1999) Schedule B(3) (Method 501)
TPH Volatiles/BTEX in Sediments	EP080-SD	SOIL	(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. This method is compliant with NEPM (1999) Schedule B(3) (Method 501)
Organophosphorus Pesticides (Ultra-trace)	EP130	SOIL	USEPA Method 3640 (GPC cleanup), 8141 (GC/FPD - Capillary Column) This technique is compliant with NEPM (1999) Schedule B(3) (Method 505)



Analytical Methods	Method	Matrix	Method Descriptions
Organochlorine Pesticides (Ultra-trace)	EP131A	SOIL	USEPA Method 3640 (GPC cleanup),3620 (Florisil), 8081/8082 (GC/uECD/uECD) This technique is compliant with NEPM (1999) Schedule B(3) (Method 504)
PCB's (Ultra-trace)	EP131B	SOIL	USEPA Method 3640 (GPC cleanup),3620 (Florisil), 8081/8082 (GC/uECD/uECD) This technique is compliant with NEPM (1999) Schedule B(3) (Method 504)
PAHs in Sediments by GCMS(SIM)	EP132B-SD	SOIL	8270 GCMS Capillary column, SIM mode using large volume programmed temperature vaporisation injection.
Carbamate Pesticides by LCMS	EP201	SOIL	USEPA Method 8318, In-house LCMS (ES in positive mode). Residues of carbamates are extracted from soil samples using acetonitrile. The extract is evaporated to near dryness and the residues are dissolved in HPLC mobile phase prior to instrumental analysis.
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	SOIL	In-House, LCMS (Electrospray in negative mode). Residues of acid herbicides are extracted from soil samples under the alkaline condition. An aliquot of the alkaline aqueous phase is taken and acidified before a SPE cleanup. After eluting off from the SPE cartridge, residues of acid herbicides are dissolved in HPLC mobile phase prior to instrument analysis.
Faecal Coliforms (Solid)	FCF-SOL	SOIL	Faecal Coliform analysis of solid matrices conducted by Subcontracting Laboratory
Miscellaneous Subcontracted Analysis	MIS-SOL	SOIL	Miscellaneous Subcontracted Analysis conducted by Subcontracting Laboratory

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In-house, APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. 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 (1999) Schedule B(3) (Method 202)
Extraction for Carbamates in Soils	EP201-PR	SOIL	USEPA Method 8318
Extraction for Phenoxy Acid Herbicides in Soils.	EP202-PR	SOIL	In-House: Alkaline extract followed by SPE clean up of acidified portion of the sample extract.
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(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/ Sample Cleanup	ORG17A-UTP	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na ₂ SO ₄ and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. Samples are extracted, concentrated (by KD) and exchanged into an appropriate solvent for GPC and florisil cleanup as required.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Tumbler Extraction of Solids for LVI (Non-concentrating)	ORG17D	SOIL	In house: 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 50mL 1:1 DCM/Acetone by end over end tumbling. An aliquot is concentrated by nitrogen blowdown to a reduced volume for analysis if required.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

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							
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Pyrene	129-00-0	43.2 %	0-20%	RPD exceeds LOR based limits
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	Anonymous	Perylene	198-55-0	112 %	0-20%	RPD exceeds LOR based limits
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	Anonymous	Sum of PAHs	----	28.2 %	0-20%	RPD exceeds LOR based limits
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-012	T18C02	Sum of PAHs	----	25.8 %	0-20%	RPD exceeds LOR based limits
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-011	Anonymous	Sum of PAHs	----	31.0 %	0-20%	RPD exceeds LOR based limits
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EP1210363-022	TZC02	Aluminium	7429-90-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG005T: Total Metals by ICP-AES	EP1210363-002	T12C01	Aluminium	7429-90-5	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG005T: Total Metals by ICP-AES	EP1210363-002	T12C01	Iron	7439-89-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG005T: Total Metals by ICP-AES	EP1210363-022	TZC02	Iron	7439-89-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP074A: Monocyclic Aromatic Hydrocarbons	EP1210363-009	T17C01	Benzene	71-43-2	47.7 %	70-130%	Recovery less than lower data quality objective
EP074A: Monocyclic Aromatic Hydrocarbons	EP1210363-009	T17C01	Toluene	108-88-3	65.8 %	70-130%	Recovery less than lower data quality objective
EP074E: Halogenated Aliphatic Compounds	EP1210363-009	T17C01	1,1-Dichloroethene	75-35-4	23.2 %	70-130%	Recovery less than lower data quality objective
EP074E: Halogenated Aliphatic Compounds	EP1210363-009	T17C01	Trichloroethene	79-01-6	43.3 %	70-130%	Recovery less than lower data quality objective
EP074F: Halogenated Aromatic Compounds	EP1210363-009	T17C01	Chlorobenzene	108-90-7	57.3 %	70-130%	Recovery less than lower data quality objective
EP080-SD: BTEXN	EP1210363-009	T17C01	Benzene	71-43-2	63.6 %	70-130%	Recovery less than lower data quality objective
EP080-SD: BTEXN	EP1210363-009	T17C01	Toluene	108-88-3	65.4 %	70-130%	Recovery less than lower data quality objective
EP131A: Organochlorine Pesticides	EP1210363-001	T10C01	4,4'-DDD	72-54-8	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.



Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries - Continued							
EP131A: Organochlorine Pesticides	EP1210363-001	T10C01	4,4'-DDE	72-55-9	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP131A: Organochlorine Pesticides	EP1210303-001	Anonymous	Heptachlor	76-44-8	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP131A: Organochlorine Pesticides	EP1210303-001	Anonymous	gamma-BHC	58-89-9	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Naphthalene	91-20-3	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	2-Methylnaphthalene	91-57-6	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Acenaphthylene	208-96-8	66.1 %	70-130%	Recovery less than lower data quality objective
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	Anonymous	Acenaphthylene	208-96-8	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Acenaphthene	83-32-9	55.6 %	70-130%	Recovery less than lower data quality objective
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Fluorene	86-73-7	40.5 %	70-130%	Recovery less than lower data quality objective
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Phenanthrene	85-01-8	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	Anonymous	Phenanthrene	85-01-8	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Anthracene	120-12-7	67.6 %	70-130%	Recovery less than lower data quality objective
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	Anonymous	Anthracene	120-12-7	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Fluoranthene	206-44-0	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	Anonymous	Fluoranthene	206-44-0	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Pyrene	129-00-0	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	Anonymous	Pyrene	129-00-0	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Benz(a)anthracene	56-55-3	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	Anonymous	Benz(a)anthracene	56-55-3	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.



Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries - Continued							
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Chrysene	218-01-9	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	Anonymous	Chrysene	218-01-9	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Benzo(b)fluoranthene	205-99-2	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	Anonymous	Benzo(b)fluoranthene	205-99-2	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Benzo(k)fluoranthene	207-08-9	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	Anonymous	Benzo(k)fluoranthene	207-08-9	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Benzo(e)pyrene	192-97-2	138 %	70-130%	Recovery greater than upper data quality objective
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	Anonymous	Benzo(e)pyrene	192-97-2	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Benzo(a)pyrene	50-32-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	Anonymous	Benzo(a)pyrene	50-32-8	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Benzo(g,h,i)perylene	191-24-2	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210303-001	Anonymous	Benzo(g,h,i)perylene	191-24-2	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Dibenz(a,h)anthracene	53-70-3	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Indeno(1,2,3-cd)pyrene	193-39-5	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP132B: Polynuclear Aromatic Hydrocarbons	EP1210363-002	T12C01	Coronene	191-07-1	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Laboratory Control outliers occur.

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
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Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)S: Phenolic Compound Surrogates	EP1210363-020	T24C01	2-Chlorophenol-D4	93951-73-6	66.0 %	66.9-114.4 %	Recovery less than lower data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	EP1210363-012	T18C02	2-Chlorophenol-D4	93951-73-6	66.6 %	66.9-114.4 %	Recovery less than lower data quality objective
EP075(SIM)T: PAH Surrogates	EP1210363-001	T10C01	2-Fluorobiphenyl	321-60-8	69.9 %	80.9-122.1 %	Recovery less than lower data quality objective
EP075(SIM)T: PAH Surrogates	EP1210363-003	T14C01	2-Fluorobiphenyl	321-60-8	70.5 %	80.9-122.1 %	Recovery less than lower data quality objective
EP075(SIM)T: PAH Surrogates	EP1210363-005	T14C03	2-Fluorobiphenyl	321-60-8	79.7 %	80.9-122.1 %	Recovery less than lower data quality objective
EP075(SIM)T: PAH Surrogates	EP1210363-007	T15C02	2-Fluorobiphenyl	321-60-8	79.9 %	80.9-122.1 %	Recovery less than lower data quality objective
EP075(SIM)T: PAH Surrogates	EP1210363-011	T18C01	2-Fluorobiphenyl	321-60-8	80.5 %	80.9-122.1 %	Recovery less than lower data quality objective
EP075(SIM)T: PAH Surrogates	EP1210363-014	T19C01	2-Fluorobiphenyl	321-60-8	67.1 %	80.9-122.1 %	Recovery less than lower data quality objective
EP075(SIM)T: PAH Surrogates	EP1210363-002	T12C01	2-Fluorobiphenyl	321-60-8	66.4 %	80.9-122.1 %	Recovery less than lower data quality objective
EP075(SIM)T: PAH Surrogates	EP1210363-004	T14C02	2-Fluorobiphenyl	321-60-8	79.8 %	80.9-122.1 %	Recovery less than lower data quality objective
EP075(SIM)T: PAH Surrogates	EP1210363-006	T15C01	2-Fluorobiphenyl	321-60-8	77.1 %	80.9-122.1 %	Recovery less than lower data quality objective
EP075(SIM)T: PAH Surrogates	EP1210363-001	T10C01	Anthracene-d10	1719-06-8	73.2 %	76.3-116.1 %	Recovery less than lower data quality objective
EP075(SIM)T: PAH Surrogates	EP1210363-005	T14C03	Anthracene-d10	1719-06-8	73.5 %	76.3-116.1 %	Recovery less than lower data quality objective
EP075(SIM)T: PAH Surrogates	EP1210363-009	T17C01	Anthracene-d10	1719-06-8	75.5 %	76.3-116.1 %	Recovery less than lower data quality objective
EP075(SIM)T: PAH Surrogates	EP1210363-014	T19C01	Anthracene-d10	1719-06-8	60.8 %	76.3-116.1 %	Recovery less than lower data quality objective
EP132T: Base/Neutral Extractable Surrogates	EP1210363-009	T17C01	2-Fluorobiphenyl	321-60-8	120 %	30-115 %	Recovery greater than upper data quality objective
EP132T: Base/Neutral Extractable Surrogates	EP1210363-015	T19C02	2-Fluorobiphenyl	321-60-8	116 %	30-115 %	Recovery greater than upper data quality objective

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **SOIL**

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



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
EP003: Total Organic Carbon (TOC) in Soil						
Snap Lock Bag T20C02	24-DEC-2012	18-DEC-2012	6	----	----	----
Soil Glass Jar - Unpreserved T10C01, T12C01, T14C01, T14C02, T14C03, T15C01, T15C02, T16C01, T17C01, T17C02, T18C01, T18C02, T18C03, T19C01, T19C02, T20C01, T22C01, T23C01, T24C01, TZC01, TZC02	24-DEC-2012	18-DEC-2012	6	----	----	----

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

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

Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : EP1210363

<p>Client : RPS ENVIRONMENT PTY LTD</p> <p>Contact : JOSH ABBOTT</p> <p>Address : 38 STATION STREET SUBIACO WA, AUSTRALIA 6008</p> <p>E-mail : josh.abbott@rpsgroup.com.au</p> <p>Telephone : +61 08 93824744</p> <p>Facsimile : +61 08 93821177</p> <p>Project : 112147</p> <p>Order number : ----</p> <p>C-O-C number : ----</p> <p>Site : Burswood Stadium</p> <p>Sampler : JA & AJ</p>	<p>Laboratory : Environmental Division Perth</p> <p>Contact : Scott James</p> <p>Address : 10 Hod Way Malaga WA Australia 6090</p> <p>E-mail : perth.enviro.services@alsglobal.com</p> <p>Telephone : +61-8-9209 7655</p> <p>Facsimile : +61-8-9209 7600</p> <p>Page : 1 of 4</p> <p>Quote number : EP2012BOWBIS0143 (EP/689/12 V4)</p> <p>QC Level : NEPM 1999 Schedule B(3) and ALS QCS3 requirement</p>
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Dates

Date Samples Received : 12-DEC-2012	Issue Date : 18-DEC-2012 12:59
Client Requested Due Date : 07-JAN-2013	Scheduled Reporting Date : 07-JAN-2013

Delivery Details

Mode of Delivery : Carrier	Temperature : 3.5 - Ice present
No. of coolers/boxes : 5 medium eskies	No. of samples received : 27
Security Seal : Intact.	No. of samples analysed : 27

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- Please see scanned COC for sample discrepancies: extra samples , samples not received etc.
- **Samples received in appropriately pretreated and preserved containers.**
- **pH analysis should be conducted within 6 hours of sampling.**
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (SamplesPerth@alsenviro.com)
- Sample Disposal - Aqueous (14 days), Solid (90 days) from date of completion of Work Order.



Sample Container(s)/Preservation Non-Compliances

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

- No sample container / preservation non-compliance exist.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: SOIL

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA029b TPA	SOIL - EA033-WA WA - Chromium Suite for Acid Sulphate Soils	SOIL - EA038 Acid Volatile Sulfur	SOIL - EA055-103 Moisture Content	SOIL - EA150H Particle Size Analysis by Hydrometer	SOIL - EA200N Asbestos - Estimated Percentage by W/ANEPM Guidelines	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EG020T (solids) Total Metals by ICP-MS
EP1210363-001	11-DEC-2012 15:00	T10C01						✓	✓	✓
EP1210363-002	11-DEC-2012 15:00	T12C01						✓	✓	✓
EP1210363-003	11-DEC-2012 15:00	T14C01						✓	✓	✓
EP1210363-004	11-DEC-2012 15:00	T14C02					✓	✓	✓	✓
EP1210363-005	11-DEC-2012 15:00	T14C03						✓	✓	✓
EP1210363-006	11-DEC-2012 15:00	T15C01					✓	✓	✓	✓
EP1210363-007	11-DEC-2012 15:00	T15C02						✓	✓	✓
EP1210363-008	11-DEC-2012 15:00	T16C01						✓	✓	✓
EP1210363-009	11-DEC-2012 15:00	T17C01						✓	✓	✓
EP1210363-010	11-DEC-2012 15:00	T17C02						✓	✓	✓
EP1210363-011	11-DEC-2012 15:00	T18C01						✓	✓	✓
EP1210363-012	11-DEC-2012 15:00	T18C02					✓	✓	✓	✓
EP1210363-013	11-DEC-2012 15:00	T18C03					✓	✓	✓	✓
EP1210363-014	11-DEC-2012 15:00	T19C01						✓	✓	✓
EP1210363-015	11-DEC-2012 15:00	T19C02					✓	✓	✓	✓
EP1210363-016	11-DEC-2012 15:00	T20C01						✓	✓	✓
EP1210363-017	11-DEC-2012 15:00	T20C02					✓	✓	✓	✓
EP1210363-018	11-DEC-2012 15:00	T22C01						✓	✓	✓
EP1210363-019	11-DEC-2012 15:00	T23C01						✓	✓	✓
EP1210363-020	11-DEC-2012 15:00	T24C01					✓	✓	✓	✓
EP1210363-021	11-DEC-2012 15:00	TZC01						✓	✓	✓
EP1210363-022	11-DEC-2012 15:00	TZC02						✓	✓	✓
EP1210363-023	11-DEC-2012 15:00	T14A	✓	✓	✓	✓				
EP1210363-024	11-DEC-2012 15:00	T15A	✓	✓	✓	✓				
EP1210363-025	11-DEC-2012 15:00	T19A	✓	✓	✓	✓				
EP1210363-026	11-DEC-2012 15:00	T20A	✓	✓	✓	✓				
EP1210363-027	11-DEC-2012 15:00	TZA01	✓	✓	✓	✓				

CLIENT: PTA
 SITE: Burswood Stadium
 PROJECT REF.: 112147
 SCIENTIST (S): JA and AJ
 SAMPLE TYPE: Sediment
 REPORT TO: Josh Abbott/Alan Foley

SEDIMENT ANALYSIS SUITES

SAMPLE ID.	DATE	TPH	BTEX	Ultra trace PAH	Phenols	Trace metals (Al, As, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Ni, Se, Zn).	Ultra trace OC/OP Pesticides	Asbestos ID	Ultra trace PCB's	TOC	Cyanide	Particle Size Distribution	Additional Metals (B, Mg, Mo, Sn)	Carbamates, Herbicides and VOCs	Nutrients (Total nitrogen, ammonia, nitrate and nitrite as NOx-N, total kjeldahl nitrogen and reactive and total phosphorus)	Pathogens (enterococci, thermotolerant coliforms)	REMARKS
1	T10C01	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
2	T12C01	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
3	T14C01	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
4	T14C02	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
5	T14C03	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
6	T15C01	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
7	T15C02	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
8	T16C01	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
9	T17C01	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
10	T17C02	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
11	T18C01	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
12	T18C02	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
13	T18C03	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
14	T19C01	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
15	T19C02	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
16	T20C01	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
17	T20C02	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
18	T22C01	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
19	T23C01	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
20	T24C01	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
21	T2C01	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						
22	T2C02	11/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓						

Destination Laboratory ALS

Relinquished by Josh A Organisation RPS
 Date 12/12/12 Time 11 AM

Received by Ross Organisation A15
 Date 12/12/12 Time 12:10

RPS
 38 Station St Subiaco 6008
 Tel: (618) 9382 4744
 Fax: (618) 9382 1177

Quote - EP/689/12 V3

Environmental Division
 Perth

Work Order
EP1210363



Telephone : +61-8-9209 7655

CERTIFICATE OF ANALYSIS

<p>Work Order : ES1229586</p> <p>Client : RPS ENVIRONMENT PTY LTD</p> <p>Contact : JOSH ABBOTT</p> <p>Address : 38 STATION STREET SUBIACO WA, AUSTRALIA 6008</p> <p>E-mail : josh.abbott@rpsgroup.com.au</p> <p>Telephone : +61 08 93824744</p> <p>Facsimile : +61 08 93821177</p> <p>Project : I12147</p> <p>Order number : ----</p> <p>C-O-C number : ----</p> <p>Sampler : ----</p> <p>Site : _BURSWOOD STADIUM</p> <p>Quote number : EP/689/12 V4</p>	<p>Page : 1 of 9</p> <p>Laboratory : Environmental Division Sydney</p> <p>Contact : Client Services</p> <p>Address : 277-289 Woodpark Road Smithfield NSW Australia 2164</p> <p>E-mail : sydney@alsglobal.com</p> <p>Telephone : +61-2-8784 8555</p> <p>Facsimile : +61-2-8784 8500</p> <p>QC Level : NEPM 1999 Schedule B(3) and ALS QCS3 requirement</p> <p>Date Samples Received : 14-DEC-2012</p> <p>Issue Date : 03-JAN-2013</p> <p>No. of samples received : 6</p> <p>No. of samples analysed : 6</p>
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



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.

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

- **ASS: EA033 (CRS Suite):** Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO₃) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m³ in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m³'.
- **EN68:** This analysis in accordance with National Ocean Disposal Guidelines, Commonwealth of Australia, 2002 - (modified). Results reported are those determined on a 1:4 sediment/seawater elutriate without blank correction.



Analytical Results

Sub-Matrix: ELUTRIATE (Matrix: WATER)

Client sample ID

Client sampling date / time

				T14A	T15A	T19A	T20A	TZA01
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	ES1229586-001	ES1229586-002	ES1229586-003	ES1229586-004	ES1229586-005
ED093T: Total Major Cations								
Magnesium	7439-95-4	1	mg/L	925	901	927	910	934
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG093T: Total Metals in Saline Water by ORC-ICPMS								
Aluminium	7429-90-5	5	µg/L	12	10	6	<5	<5
Selenium	7782-49-2	2	µg/L	<2	<2	<2	<2	<2
Iron	7439-89-6	5	µg/L	10	58	25	185	199
Arsenic	7440-38-2	0.5	µg/L	6.0	22.5	9.0	13.5	12.8
Boron	7440-42-8	100	µg/L	3120	2910	2850	2760	2780
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
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
Manganese	7439-96-5	0.5	µg/L	431	303	443	729	696
Molybdenum	7439-98-7	0.1	µg/L	116	38.0	24.7	14.2	13.8
Nickel	7440-02-0	0.5	µg/L	0.6	<0.5	<0.5	<0.5	<0.5
Tin	7440-31-5	5	µg/L	<5	<5	<5	<5	<5
Zinc	7440-66-6	5	µg/L	<5	<5	<5	<5	<5
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-Methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	19.4	17.1	14.7	14.7	13.6



Analytical Results

Sub-Matrix: ELUTRIATE (Matrix: WATER)

Client sample ID

				T14A	T15A	T19A	T20A	TZA01
				11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
				ES1229586-001	ES1229586-002	ES1229586-003	ES1229586-004	ES1229586-005
Compound	CAS Number	LOR	Unit					
EP075(SIM)S: Phenolic Compound Surrogates - Continued								
2-Chlorophenol-D4	93951-73-6	0.1	%	45.0	38.4	34.1	34.3	32.0
2,4,6-Tribromophenol	118-79-6	0.1	%	47.1	40.8	35.1	34.7	31.5
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	51.6	44.2	37.8	34.9	26.0
Anthracene-d10	1719-06-8	0.1	%	53.6	47.4	45.0	42.5	35.1
4-Terphenyl-d14	1718-51-0	0.1	%	54.2	48.5	44.8	43.0	35.6



Analytical Results

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

Client sample ID

SEA WATER

Client sampling date / time

11-DEC-2012 15:00

Compound	CAS Number	LOR	Unit	ES1229586-006	---	---	---	---
ED093T: Total Major Cations								
Magnesium	7439-95-4	1	mg/L	925	---	---	---	---
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	---	---	---	---
EG093T: Total Metals in Saline Water by ORC-ICPMS								
Aluminium	7429-90-5	5	µg/L	<5	---	---	---	---
Selenium	7782-49-2	2	µg/L	<2	---	---	---	---
Iron	7439-89-6	5	µg/L	<5	---	---	---	---
Arsenic	7440-38-2	0.5	µg/L	1.0	---	---	---	---
Boron	7440-42-8	100	µg/L	2850	---	---	---	---
Cadmium	7440-43-9	0.2	µg/L	<0.2	---	---	---	---
Chromium	7440-47-3	0.5	µg/L	<0.5	---	---	---	---
Copper	7440-50-8	1	µg/L	4	---	---	---	---
Lead	7439-92-1	0.2	µg/L	<0.2	---	---	---	---
Manganese	7439-96-5	0.5	µg/L	4.8	---	---	---	---
Molybdenum	7439-98-7	0.1	µg/L	8.1	---	---	---	---
Nickel	7440-02-0	0.5	µg/L	0.6	---	---	---	---
Tin	7440-31-5	5	µg/L	<5	---	---	---	---
Zinc	7440-66-6	5	µg/L	<5	---	---	---	---
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	---	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	---	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	---	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	---	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	---	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	---	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	---	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	---	---	---	---
4-Chloro-3-Methylphenol	59-50-7	1.0	µg/L	<1.0	---	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	---	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	---	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	---	---	---	---
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	14.1	---	---	---	---



Analytical Results

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

Client sample ID

SEA WATER	----	----	----	----
------------------	------	------	------	------

Client sampling date / time

11-DEC-2012 15:00	----	----	----	----
-------------------	------	------	------	------

<i>Compound</i>	<i>CAS Number</i>	<i>LOR</i>	<i>Unit</i>	ES1229586-006	----	----	----	----
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EP075(SIM)S: Phenolic Compound Surrogates - Continued

2-Chlorophenol-D4	93951-73-6	0.1	%	34.9	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	37.0	----	----	----	----

EP075(SIM)T: PAH Surrogates

2-Fluorobiphenyl	321-60-8	0.1	%	28.6	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	44.2	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	45.5	----	----	----	----



Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Client sample ID

			T14A	T15A	T19A	T20A	TZA01
			11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00	11-DEC-2012 15:00
			ES1229586-001	ES1229586-002	ES1229586-003	ES1229586-004	ES1229586-005
EN68: Seawater Elutriate Testing Procedure							
			20/12/12	20/12/12	20/12/12	20/12/12	20/12/12

Client sampling date / time

Compound CAS Number LOR Unit

Seawater Sampling Date

0.1

-

20/12/12

20/12/12

20/12/12

20/12/12

20/12/12



Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Client sample ID

SEA WATER

Client sampling date / time

11-DEC-2012 15:00

Compound	CAS Number	LOR	Unit
EN68: Seawater Elutriate Testing Procedure			
Seawater Sampling Date	----	0.1	-

ES1229586-006

20/12/12



Surrogate Control Limits

Sub-Matrix: ELUTRIATE		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	15.9	102
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20.4	112
Anthracene-d10	1719-06-8	29.6	118
4-Terphenyl-d14	1718-51-0	21.5	126

QUALITY CONTROL REPORT

Work Order	: ES1229586	Page	: 1 of 5
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: JOSH ABBOTT	Contact	: Client Services
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: josh.abbott@rpsgroup.com.au	E-mail	: sydney@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-2-8784 8555
Facsimile	: +61 08 93821177	Facsimile	: +61-2-8784 8500
Project	: I12147	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: _BURSWOOD STADIUM	Date Samples Received	: 14-DEC-2012
C-O-C number	: ----	Issue Date	: 03-JAN-2013
Sampler	: ----	No. of samples received	: 6
Order number	: ----	No. of samples analysed	: 6
Quote number	: EP/689/12 V4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



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.

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 (%)
ED093T: Total Major Cations (QC Lot: 2665261)									
ES1229586-001	T14A	ED093T: Magnesium	7439-95-4	1	mg/L	925	892	3.6	0% - 20%
ED093T: Total Major Cations (QC Lot: 2669853)									
ES1229586-006	SEA WATER	ED093T: Magnesium	7439-95-4	1	mg/L	925	907	2.0	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2667022)									
EP1210463-017	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1229961-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 2667250)									
ES1229586-006	SEA WATER	EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	8.1	8.2	1.6	0% - 20%
		EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	1.0	1.1	0.0	No Limit
		EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-T: Manganese	7439-96-5	0.5	µg/L	4.8	5.2	6.6	0% - 50%
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	0.6	0.6	0.0	No Limit
		EG093A-T: Copper	7440-50-8	1	µg/L	4	4	0.0	No Limit
		EG093A-T: Boron	7440-42-8	100	µg/L	2850	2980	4.2	0% - 20%
		EG093A-T: Aluminium	7429-90-5	5	µg/L	<5	<5	0.0	No Limit
		EG093A-T: Tin	7440-31-5	5	µg/L	<5	<5	0.0	No Limit
EG093A-T: Zinc	7440-66-6	5	µg/L	<5	<5	0.0	No Limit		
EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 2667252)									
ES1229586-006	SEA WATER	EG093B-T: Selenium	7782-49-2	2	µg/L	<2	<2	0.0	No Limit
		EG093B-T: Iron	7439-89-6	5	µg/L	<5	<5	0.0	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 Sample (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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
ED093T: Total Major Cations (QCLot: 2665261)									
ED093T: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	99.8	84	116	
ED093T: Total Major Cations (QCLot: 2669853)									
ED093T: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	99.9	84	116	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2667022)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	90.0	71	119	
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2667250)									
EG093A-T: Aluminium	7429-90-5	10	µg/L	<10	50 µg/L	99.7	81	127	
EG093A-T: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	96.7	89	125	
EG093A-T: Boron	7440-42-8	100	µg/L	<100	----	----	----	----	
EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	89.8	78	112	
EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	119	86	126	
EG093A-T: Copper	7440-50-8	1	µg/L	<1	10 µg/L	92.3	87	123	
EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	97.4	89	121	
EG093A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	116	91	121	
EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	97.9	90	126	
EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	95.5	85	125	
EG093A-T: Tin	7440-31-5	5	µg/L	<5	10 µg/L	97.0	93	130	
EG093A-T: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	83.1	82	128	
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2667252)									
EG093B-T: Selenium	7782-49-2	2	µg/L	<2	10 µg/L	76.8	75	133	
EG093B-T: Iron	7439-89-6	5	µg/L	<5	50 µg/L	125	78	132	
EP075(SIM)A: Phenolic Compounds (QCLot: 2660664)									
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	36.8	24.5	61.9	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	67.3	63.8	110	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	65.3	55.9	112	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	57.2	42.5	114	
		2	µg/L	<2.0	----	----	----	----	
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	68.0	62.7	117	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	70.5	59.9	112	
		1	µg/L	<1.0	----	----	----	----	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 2660664) - continued									
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	61.7	59.3	122	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	64.6	64.3	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	69.3	63	119	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	63.2	58.7	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	78.5	51.2	118	
		1	µg/L	<1.0	----	----	----	----	
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	58.7	6.85	95.6	
		2	µg/L	<2.0	----	----	----	----	

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
					MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2667022)							
ES1229586-001	T14A	EG035T: Mercury	7439-97-6	0.010 mg/L	76.2	70	130

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2667022)										
ES1229586-001	T14A	EG035T: Mercury	7439-97-6	0.010 mg/L	76.2	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1229586	Page	: 1 of 6
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: JOSH ABBOTT	Contact	: Client Services
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: josh.abbott@rpsgroup.com.au	E-mail	: sydney@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-2-8784 8555
Facsimile	: +61 08 93821177	Facsimile	: +61-2-8784 8500
Project	: I12147	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: _BURSWOOD STADIUM	Date Samples Received	: 14-DEC-2012
C-O-C number	: ----	Issue Date	: 03-JAN-2013
Sampler	: ----	No. of samples received	: 6
Order number	: ----	No. of samples analysed	: 6
Quote number	: EP/689/12 V4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

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
ED093T: Total Major Cations							
Clear Plastic Bottle - Natural (ED093T) SEA WATER	11-DEC-2012	02-JAN-2013	27-DEC-2012	✘	02-JAN-2013	27-DEC-2012	✘
Clear Plastic Bottle - Natural (ED093T) T14A, T19A, TZA01 T15A, T20A,	11-DEC-2012	27-DEC-2012	27-DEC-2012	✔	02-JAN-2013	27-DEC-2012	✘
EG035T: Total Recoverable Mercury by FIMS							
Clear HDPE (U-T ORC) - UHP Nitric Acid; Unfiltered (EG035T) T14A, T19A, TZA01, T15A, T20A, SEA WATER	11-DEC-2012	---	---	---	28-DEC-2012	17-JAN-2013	✔
EG093T: Total Metals in Saline Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - UHP Nitric Acid; Unfiltered (EG093A-T) T14A, T19A, TZA01, T15A, T20A, SEA WATER	11-DEC-2012	28-DEC-2012	18-JUN-2013	✔	28-DEC-2012	18-JUN-2013	✔
EG093T: Total Metals in Saline Water by ORC-ICPMS							
Clear HDPE (U-T ORC) - UHP Nitric Acid; Unfiltered (EG093B-T) T14A, T19A, TZA01, T15A, T20A, SEA WATER	11-DEC-2012	28-DEC-2012	18-JUN-2013	✔	28-DEC-2012	18-JUN-2013	✔
EN68: Seawater Elutriate Testing Procedure							
LabSplit: Leach for organics and other tests (EN68a) T14A, T19A, TZA01, T15A, T20A, SEA WATER	11-DEC-2012	---	25-DEC-2012	---	20-DEC-2012	25-DEC-2012	✔
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) T14A, T19A, TZA01, T15A, T20A, SEA WATER	11-DEC-2012	24-DEC-2012	27-DEC-2012	✔	24-DEC-2012	02-FEB-2013	✔



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(where) 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	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Major Cations - Total	ED093T	2	12	16.7	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	8	12.5	9.5	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	6	16.7	10.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Major Cations - Total	ED093T	2	12	16.7	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	5.9	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	8	12.5	4.8	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	6	16.7	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Major Cations - Total	ED093T	2	12	16.7	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	5.9	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	8	12.5	4.8	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	6	16.7	5.0	✔	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✔	ALS QCS3 requirement



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
Major Cations - Total	ED093T	SOIL	APHA 21st ed., 3120; USEPA SW 846 - 6010 Samples are digested by USEPA 3005 prior to analysis. The ICPAES technique ionises the sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(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 SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	SOIL	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um 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 (1999) Schedule B(3) (Appdx. 2)
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	SOIL	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um 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 (1999) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	SOIL	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 (1999) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	SOIL	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Digestion for Total Recoverable Metals - ORC	EN25-ORC	SOIL	Modified 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 (1999) Schedule B(3) (Appdx. 2)
Seawater Elutriate Testing Procedure	* EN68a	SOIL	USEPA Evaluation of Dredged Material Proposed for Ocean Disposal - Testing Guide, 1991, EPA-503/8-91/001, USEPA and US Army Corps of Engineers. ANZECC Interim Ocean Disposal Guidelines, December, 1998 This Procedure outlines the preparation of leachate designed to simulate release of contaminants from sediment during the disposal of dredged material. Release can occur by physical processes or a variety of chemical changes such as oxidation of metal sulphides and release of contaminants adsorbed to particles or organic matter.



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Separatory Funnel Extraction of Liquids	ORG14	SOIL	USEPA SW 846 - 3510B 500 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 (1999) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: SOIL

Method	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
ED093T: Total Major Cations						
Clear Plastic Bottle - Natural SEA WATER	02-JAN-2013	27-DEC-2012	6	02-JAN-2013	27-DEC-2012	6
Clear Plastic Bottle - Natural T14A, T19A, TZA01 T15A, T20A,	----	----	----	02-JAN-2013	27-DEC-2012	6

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : ES1229586	
Client : RPS ENVIRONMENT PTY LTD Contact : JOSH ABBOTT Address : 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Laboratory : Environmental Division Sydney Contact : Client Services Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail : josh.abbott@rpsgroup.com.au Telephone : +61 08 93824744 Facsimile : +61 08 93821177	E-mail : sydney@alsglobal.com Telephone : +61-2-8784 8555 Facsimile : +61-2-8784 8500
Project : I12147 Order number : ---- C-O-C number : ---- Site : _BURSWOOD STADIUM Sampler : ----	Page : 1 of 2 Quote number : EP2012BOWBIS0143 (EP/689/12 V4) QC Level : NEPM 1999 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 14-DEC-2012 Client Requested Due Date : 03-JAN-2013	Issue Date : 18-DEC-2012 15:18 Scheduled Reporting Date : 03-JAN-2013
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Delivery Details

Mode of Delivery : Carrier No. of coolers/boxes : 1 HARD Security Seal : Intact.	Temperature : 11.9°C - Ice present No. of samples received : 6 No. of samples analysed : 5
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General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **CRS Long suite plus TPA and Acid Volatile Sulphur to be reported in separate work order EP121036.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



REGISTRATION DETAILS

APPROVED BY: R. MA

Bottle Map	1ℓ Plastic	500mℓ Plastic	500mℓ Plastic	250mℓ Plastic	125mℓ Plastic	1ℓ Amber	500mℓ Amber	100mℓ Amber	40mℓ Amber Vial	500mℓ Plastic	250mℓ Plastic	125mℓ Plastic	250mℓ Glass Jar	125mℓ Glass Jar	Other Lab	Ziplock Bag/ Other	Job Number:
Sample Numbers:	Green	Green	Purple	Green	Red	Green	Orange	Green	White	Blue	Orange	Brown					PE073244
1														3	ziplock bag		
																	# of Eskies:
																	IB / ICE / None
																	Temp: _____ °C
																	Tray Numbers:
																	S-275
																	Hygiene

Registration comments:

TPH and Phenols confirmed as TRM and Speciated Phenols by client.

Action Taken:

Registered By:

DB val/bk

CLIENT DETAILS

Contact Alan Foley
 Client RPS Environment and Planning Pty Ltd
 Address PO Box 465
 SUBIACO WA 6904

Telephone 08 9211 1111
 Facsimile 08 9211 1122
 Email alan.foley@rpsgroup.com.au

Project **I12147 Burswood Stadium**
 Order Number **I12147**
 Samples 1

LABORATORY DETAILS

Manager Ros Ma
 Laboratory SGS Newburn Environmental
 Address 10 Reid Rd
 Newburn WA 6105

Telephone (08) 9373 3500
 Facsimile (08) 9373 3556
 Email au.environmental.perth@sgs.com

SGS Reference **PE073244 R0**
 Report Number 0000052574
 Date Reported 27 Dec 2012
 Date Received 12 Dec 2012

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(898/20210).

Fibre Identification performed by Approved Identifier Karin White.

TRH matrix spikes could not be reported for sample "TZZC02" due to the sample being heavily impacted with hydrocarbons.

MS for Total Cyanide failed acceptance criteria due to interference from the matrix. Other QC's passed.

SVOC - LOR's were raised, matrix spikes and some surrogates could not be reported due to sample matrix interferences and dilution.

SIGNATORIES



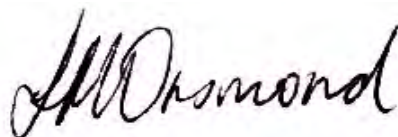
Gary Walton
Organic Chemist



Hue Thanh Ly
Metals Supervisor



Karin White
Hygiene Signatory



Leanne Orsmond
Inorganics Coordinator



Lee-Anne Pedrick
Senior Chemist



Michael McKay
Inorganic Team Leader - Waters

Sample Number	PE073244.001
Sample Matrix	Soil
Sample Date	11 Dec 2012
Sample Name	TZZC02

Parameter	Units	LOR	
Moisture Content Method: AN002			
% Moisture	%	0.5	67.1

Total Carbon and TOC by LECO Furnace Method: AN203			
Total Organic Carbon (TOC)	%w/w	0.02	3.0

Total Cyanide in soil by Discrete Analyser (Aquakem) Method: AN077/AN287			
Total Cyanide	mg/kg	0.1	<0.1
Total Cyanide Post Chlorination	mg/kg	0.1	-
Cyanide Amenable to Chlorination	mg/kg	0.1	-

Total Oxidised Nitrogen NOx (Water Extract) in Soil Method: AN258			
Water Soluble Nitrate/Nitrite Nitrogen, NOx as N*	mg/kg	1	<1
Water Soluble Nitrite Nitrogen, NO ₂ as N*	mg/kg	1	<1
Water Soluble Nitrate Nitrogen, NO ₃ as N*	mg/kg	1	<1

Total Kjeldahl Nitrogen and Total Nitrogen in Soil/Sludges Method: AN281			
Total Kjeldahl Nitrogen*	mg/kg	5	3000
Total Nitrogen*	mg/kg	10	3000

Low Level Ammonia Nitrogen (soluble) in Soil, sediment or biosolids Method: AN002/AN261			
Water Soluble Ammonia Nitrogen, NH ₃ as N*	mg/kg	0.025	41

Water Soluble ortho Phosphorus in Soil Method: AN278			
Water Soluble ortho Phosphorus*	mg/kg	0.02	1.57

Total Recoverable Metals in Soil by ICPOES Method: AN/320AN321			
Phosphorus, P	mg/kg	10	730
Aluminium, Al	mg/kg	50	24000
Arsenic, As	mg/kg	1	10
Boron, B	mg/kg	5	36
Cadmium, Cd	mg/kg	0.1	1.4
Chromium, Cr	mg/kg	0.5	62
Copper, Cu	mg/kg	0.5	93
Iron, Fe	mg/kg	50	42000
Lead, Pb	mg/kg	1	170
Magnesium, Mg	mg/kg	10	7700
Manganese, Mn	mg/kg	1	250
Molybdenum, Mo	mg/kg	1	2
Nickel, Ni	mg/kg	0.5	21
Selenium, Se	mg/kg	1	<1
Tin, Sn	mg/kg	3	4
Zinc, Zn	mg/kg	2	410

Sample Number	PE073244.001
Sample Matrix	Soil
Sample Date	11 Dec 2012
Sample Name	TZZC02

Parameter	Units	LOR
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Mercury in Soil Method: AN312

Mercury	mg/kg	0.05	0.29
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Fibre Identification in soil Method: AN602

FibreID

Asbestos Detected	No unit	-	No
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Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410

TRH C6-C9	mg/kg	20	<20
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	103
d4-1,2-dichloroethane (Surrogate)	%	-	110
d8-toluene (Surrogate)	%	-	95
Bromofluorobenzene (Surrogate)	%	-	96

VPH F Bands

Benzene (F0)	mg/kg	0.1	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403

TRH C10-C14	mg/kg	20	31
TRH C15-C28	mg/kg	45	200
TRH C29-C36	mg/kg	45	220

TRH F Bands

TRH >C10-C16 (F2)	mg/kg	25	100
TRH >C16-C34 (F3)	mg/kg	90	310
TRH >C34-C40 (F4)	mg/kg	120	<120

VOC's in Soil Method: AN433/AN434

Fumigants

2,2-dichloropropane	mg/kg	0.1	<0.1
1,2-dichloropropane	mg/kg	0.1	<0.1
cis-1,3-dichloropropene	mg/kg	0.1	<0.1
trans-1,3-dichloropropene	mg/kg	0.1	<0.1
1,2-dibromoethane (EDB)	mg/kg	0.1	<0.1

Sample Number	PE073244.001
Sample Matrix	Soil
Sample Date	11 Dec 2012
Sample Name	TZZC02

Parameter	Units	LOR
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VOC's in Soil Method: AN433/AN434 (continued)

Halogenated Aliphatics

Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1
Chloromethane	mg/kg	1	<1
Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1
Bromomethane	mg/kg	1	<1
Chloroethane	mg/kg	1	<1
Trichlorofluoromethane	mg/kg	1	<1
Iodomethane	mg/kg	5	<5
1,1-dichloroethene	mg/kg	0.1	<0.1
Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5
Allyl chloride	mg/kg	0.1	<0.1
trans-1,2-dichloroethene	mg/kg	0.1	<0.1
1,1-dichloroethane	mg/kg	0.1	<0.1
cis-1,2-dichloroethene	mg/kg	0.1	<0.1
Bromochloromethane	mg/kg	0.1	<0.1
1,2-dichloroethane	mg/kg	0.1	<0.1
1,1,1-trichloroethane	mg/kg	0.1	<0.1
1,1-dichloropropene	mg/kg	0.1	<0.1
Carbon tetrachloride	mg/kg	0.1	<0.1
Dibromomethane	mg/kg	0.1	<0.1
Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	<0.1
1,1,2-trichloroethane	mg/kg	0.1	<0.1
1,3-dichloropropane	mg/kg	0.1	<0.1
Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	<0.1
1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1
cis-1,4-dichloro-2-butene	mg/kg	1	<1
1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1
1,2,3-trichloropropane	mg/kg	0.1	<0.1
trans-1,4-dichloro-2-butene	mg/kg	1	<1
1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1
Hexachlorobutadiene	mg/kg	0.1	<0.1

Halogenated Aromatics

Chlorobenzene	mg/kg	0.1	<0.1
Bromobenzene	mg/kg	0.1	<0.1
2-chlorotoluene	mg/kg	0.1	<0.1
4-chlorotoluene	mg/kg	0.1	<0.1
1,3-dichlorobenzene	mg/kg	0.1	<0.1
1,4-dichlorobenzene	mg/kg	0.1	<0.1
1,2-dichlorobenzene	mg/kg	0.1	<0.1
1,2,4-trichlorobenzene	mg/kg	0.1	<0.1
1,2,3-trichlorobenzene	mg/kg	0.1	<0.1

Sample Number PE073244.001
 Sample Matrix Soil
 Sample Date 11 Dec 2012
 Sample Name TZC02

Parameter Units LOR

VOC's in Soil Method: AN433/AN434 (continued)

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1
Toluene	mg/kg	0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2
o-xylene	mg/kg	0.1	<0.1
Styrene (Vinyl benzene)	mg/kg	0.1	<0.1
Isopropylbenzene (Cumene)	mg/kg	0.1	<0.1
n-propylbenzene	mg/kg	0.1	<0.1
1,3,5-trimethylbenzene	mg/kg	0.1	<0.1
tert-butylbenzene	mg/kg	0.1	<0.1
1,2,4-trimethylbenzene	mg/kg	0.1	<0.1
sec-butylbenzene	mg/kg	0.1	<0.1
p-isopropyltoluene	mg/kg	0.1	<0.1
n-butylbenzene	mg/kg	0.1	<0.1

Nitrogenous Compounds

Acrylonitrile	mg/kg	0.1	<0.1
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Oxygenated Compounds

Acetone (2-propanone)	mg/kg	10	<10
MtBE (Methyl-tert-butyl ether)	mg/kg	0.5	<0.5
Vinyl acetate	mg/kg	10	<10
MEK (2-butanone)	mg/kg	10	<10
MIBK (4-methyl-2-pentanone)	mg/kg	1	<1
2-hexanone (MBK)	mg/kg	5	<5

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1
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Sulphonated Compounds

Carbon disulfide	mg/kg	0.5	<0.5
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	103
d4-1,2-dichloroethane (Surrogate)	%	-	110
d8-toluene (Surrogate)	%	-	95
Bromofluorobenzene (Surrogate)	%	-	96

Sample Number	PE073244.001
Sample Matrix	Soil
Sample Date	11 Dec 2012
Sample Name	TZZC02

Parameter	Units	LOR	
VOC's in Soil Method: AN433/AN434 (continued)			
Trihalomethanes			
Chloroform	mg/kg	0.1	<0.1
Bromodichloromethane	mg/kg	0.1	<0.1
Chlorodibromomethane	mg/kg	0.1	<0.1
Bromoform	mg/kg	0.1	<0.1

Parameter	Units	LOR	
Ultra Low Level OC Pesticides in Soil Method: AN400/AN420			
Aldrin	mg/kg	0.001	<0.050 †
Alpha BHC	mg/kg	0.001	<0.050 †
Alpha Chlordane	mg/kg	0.001	<0.050 †
Alpha Endosulfan	mg/kg	0.001	<0.050 †
Beta BHC	mg/kg	0.001	<0.050 †
Beta Endosulfan	mg/kg	0.001	<0.050 †
Chlordane (alpha + gamma chlordane)	mg/kg	0.001	<0.10 †
Delta BHC	mg/kg	0.001	<0.050 †
Dieldrin	mg/kg	0.001	<0.050 †
Endosulfan sulphate	mg/kg	0.001	<0.060 †
Endrin	mg/kg	0.001	<0.050 †
Endrin Aldehyde	mg/kg	0.001	<0.050 †
Endrin Ketone	mg/kg	0.001	<0.050 †
Gamma Chlordane	mg/kg	0.001	<0.050 †
HCB (Hexachlorobenzene)	mg/kg	0.001	<0.050 †
Heptachlor	mg/kg	0.001	<0.050 †
Heptachlor epoxide	mg/kg	0.001	<0.050 †
Lindane	mg/kg	0.001	<0.050 †
Methoxychlor	mg/kg	0.001	<0.050 †
Mirex	mg/kg	0.001	<0.050 †
Oxychlordane	mg/kg	0.001	<0.050 †
p,p'-DDD	mg/kg	0.001	<0.050 †
p,p'-DDE	mg/kg	0.001	<0.060 †
p,p'-DDT	mg/kg	0.001	<0.070 †
Total Aldrin and Dieldrin VIC EPA	mg/kg	0.01	<0.10 †
Total BHC	mg/kg	0.004	<0.20 †
Total CLP OC Pesticides	mg/kg	0.01	<0.10 †
Total OC VIC EPA	mg/kg	0.01	<0.10 †
Total Other OC VIC EPA	mg/kg	0.1	<0.1
Total p,p' DDE/DDT/DDD	mg/kg	0.003	<0.15 †

	Sample Number	PE073244.001
	Sample Matrix	Soil
	Sample Date	11 Dec 2012
	Sample Name	TZZC02

Parameter	Units	LOR	
Ultra Low Level OC Pesticides in Soil Method: AN400/AN420 (continued)			
Surrogates			
Decachlorobiphenyl (DCBP) (Surrogate)	%	-	-
Dibromo-DDE (Surrogate)	%	-	-
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-
d14-p-terphenyl (Surrogate)	%	-	115

Low Level OP Pesticides in Soil Method: AN400/AN420			
Azinphos-methyl (Guthion)	mg/kg	0.05	<0.05
Bromophos Ethyl	mg/kg	0.05	<0.05
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.05	<0.05
Diazinon (Dimpylate)	mg/kg	0.05	<0.05
Dichlorvos	mg/kg	0.1	<0.1
Dimethoate	mg/kg	0.05	<0.05
Ethion	mg/kg	0.05	<0.05
Fenitrothion	mg/kg	0.05	<0.07 †
Malathion	mg/kg	0.05	<0.06 †
Methidathion	mg/kg	0.05	<0.06 †
Parathion-ethyl (Parathion)	mg/kg	0.05	<0.06 †

Surrogates			
d14-p-terphenyl (Surrogate)	%	-	115

Low Level PCBs in Soil Method: AN400/AN420			
PCB Congener C101	mg/kg	0.004	<0.050 †
PCB Congener C118	mg/kg	0.004	<0.050 †
PCB Congener C138	mg/kg	0.004	<0.050 †
PCB Congener C153	mg/kg	0.004	<0.050 †
PCB Congener C180	mg/kg	0.004	<0.050 †
PCB Congener C28	mg/kg	0.02	<0.05 †
PCB Congener C52	mg/kg	0.01	<0.05 †

Surrogates			
d14-p-terphenyl (Surrogate)	%	-	115

Sample Number	PE073244.001
Sample Matrix	Soil
Sample Date	11 Dec 2012
Sample Name	TZZC02

Parameter	Units	LOR	
Low Level PAH (Poly Aromatic Hydrocarbons) in Soil Method: AN420			
1-methylnaphthalene	mg/kg	0.01	<0.05 †
2-methylnaphthalene	mg/kg	0.01	0.05
Acenaphthene	mg/kg	0.01	<0.05 †
Acenaphthylene	mg/kg	0.01	0.14
Anthracene	mg/kg	0.01	0.13
Benzo(a)anthracene	mg/kg	0.01	0.45
Benzo(a)pyrene	mg/kg	0.01	0.63
Benzo(b&k)fluoranthene	mg/kg	0.02	1.1
Benzo(ghi)perylene	mg/kg	0.01	0.18
Chrysene	mg/kg	0.01	0.32
Pyrene	mg/kg	0.01	0.94
Dibenzo(a&h)anthracene	mg/kg	0.01	0.10
Fluoranthene	mg/kg	0.01	0.61
Naphthalene	mg/kg	0.01	0.07
Phenanthrene	mg/kg	0.01	0.17
Fluorene	mg/kg	0.01	<0.05 †
Indeno(1,2,3-cd)pyrene	mg/kg	0.01	0.41

Surrogates

Surrogate	Units	LOR	Value
d5-nitrobenzene (Surrogate)	%	-	-
2-fluorobiphenyl (Surrogate)	%	-	-
d14-p-terphenyl (Surrogate)	%	-	115

Speciated Phenols in Soil Method: AN420

Phenol	Units	LOR	Value
Phenol	mg/kg	0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1
Total Cresol	mg/kg	1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5
2,4-dimethyl phenol	mg/kg	0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5
4-nitrophenol	mg/kg	1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5
2,3,4,6-tetrachlorophenol	mg/kg	0.5	<0.5
Pentachlorophenol	mg/kg	0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1

Sample Number	PE073244.001
Sample Matrix	Soil
Sample Date	11 Dec 2012
Sample Name	TZZC02

Parameter Units LOR

Speciated Phenols in Soil Method: AN420 (continued)

Surrogates

2,4,6-Tribromophenol (Surrogate)	%	-	118
d14-p-terphenyl (Surrogate)	%	-	115

Acid Herbicides in Soil Method: AN420

Clopyralid	mg/kg	0.2	<0.2
4-chlorophenoxy acetic acid (4-CPA)	mg/kg	0.5	<0.5
Dicamba	mg/kg	0.2	<0.2
MCCP (Mecoprop)	mg/kg	0.2	<0.2
MCPA	mg/kg	0.2	<0.2
2,6-D	mg/kg	0.2	<0.2
Dichlorprop (2,4-DP)	mg/kg	0.2	<0.2
2,4-D	mg/kg	0.2	<0.2
Bromoxynil	mg/kg	0.2	<0.2
Triclopyr	mg/kg	0.2	<0.2
2,4,6-T	mg/kg	0.2	<0.2
2,4,5-TP (Silvex, Fenopop)	mg/kg	0.2	<0.2
2,4,5-T	mg/kg	0.2	<0.2
MCPB	mg/kg	0.5	<0.5
Fluroxypyr	mg/kg	0.2	<0.2
Dinoseb	mg/kg	0.2	<0.2
2,4-DB	mg/kg	0.2	<0.2
loxynil	mg/kg	0.5	<0.5
Picloram	mg/kg	0.5	<0.5

Surrogates

2,4-dichlorophenylacetic acid (Surrogate)	%	-	93
d14-p-terphenyl (Surrogate)	%	-	-

Carbamates in Soil Method: AN420

Carbamates

Carbofuran	mg/kg	0.5	<0.5
Carbaryl	mg/kg	0.5	<0.5



ANALYTICAL REPORT

PE073244 R0

Sample Number PE073244.001
Sample Matrix Soil
Sample Date 11 Dec 2012
Sample Name TZZC02

Parameter Units LOR

Carbamates in Soil Method: AN420 (continued)

Surrogates

d14-p-terphenyl (Surrogate)	%	-	115
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MB blank results are compared to the Limit of Reporting
 LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
 DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

Acid Herbicides in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC	Units	LOR	MB	DUP %RPD	LCS	MS	MSD %RPD
	Reference					%Recovery	%Recovery	
Clopyralid	LB055513	mg/kg	0.2	<0.2	0%			
4-chlorophenoxy acetic acid (4-CPA)	LB055513	mg/kg	0.5	<0.5	0%			
Dicamba	LB055513	mg/kg	0.2	<0.2	0%			
MCCPP (Mecoprop)	LB055513	mg/kg	0.2	<0.2	0%	88%	95%	9%
MCPA	LB055513	mg/kg	0.2	<0.2	0%			
2,6-D	LB055513	mg/kg	0.2	<0.2	0%			
Dichlorprop (2,4-DP)	LB055513	mg/kg	0.2	<0.2	0%			
2,4-D	LB055513	mg/kg	0.2	<0.2	0%	82%	80%	34%
Bromoxynil	LB055513	mg/kg	0.2	<0.2	0%			
Triclopyr	LB055513	mg/kg	0.2	<0.2	0%			
2,4,6-T	LB055513	mg/kg	0.2	<0.2	0%			
2,4,5-TP (Silvex, Fenopop)	LB055513	mg/kg	0.2	<0.2	0%	91%	97%	28%
2,4,5-T	LB055513	mg/kg	0.2	<0.2	0%	82%	81%	29%
MCPB	LB055513	mg/kg	0.5	<0.5	0%			
Fluroxypyr	LB055513	mg/kg	0.2	<0.2	0%			
Dinoseb	LB055513	mg/kg	0.2	<0.2	0%			
2,4-DB	LB055513	mg/kg	0.2	<0.2	0%			
loxynil	LB055513	mg/kg	0.5	<0.5	0%			
Picloram	LB055513	mg/kg	0.5	<0.5	0%			

Surrogates

Parameter	QC	Units	LOR	MB	DUP %RPD	LCS	MS	MSD %RPD
	Reference					%Recovery	%Recovery	
2,4-dichlorophenylacetic acid (Surrogate)	LB055513	%	-	90%	4%	90%	89%	14%

Carbamates in Soil Method: ME-(AU)-[ENV]AN420

Carbamates

Parameter	QC	Units	LOR	MB	DUP %RPD	LCS
	Reference					%Recovery
Carbofuran	LB056126	mg/kg	0.5	<0.5	0%	91%
Carbaryl	LB056126	mg/kg	0.5	<0.5	0%	

Surrogates

Parameter	QC	Units	LOR	MB	DUP %RPD	LCS
	Reference					%Recovery
d14-p-terphenyl (Surrogate)	LB056126	%	-	126%	12%	124%

MB blank results are compared to the Limit of Reporting
 LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
 DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

Low Level Ammonia Nitrogen (soluble) in Soil, sediment or biosolids Method: ME-(AU)-[ENV]AN002/AN261

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Water Soluble Ammonia Nitrogen, NH ₃ as N*	LB056007	mg/kg	0.025	<0.025	104%

Low Level OP Pesticides in Soil Method: ME-(AU)-[ENV]AN400/AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Azinphos-methyl (Guthion)	LB055478	mg/kg	0.05	<0.05	0%	
Bromophos Ethyl	LB055478	mg/kg	0.05	<0.01	0%	
Chlorpyrifos (Chlorpyrifos Ethyl)	LB055478	mg/kg	0.05	<0.02	0%	94%
Diazinon (Dimpylate)	LB055478	mg/kg	0.05	<0.05	0%	112%
Dichlorvos	LB055478	mg/kg	0.1	<0.1	0%	
Dimethoate	LB055478	mg/kg	0.05	<0.05	0%	
Ethion	LB055478	mg/kg	0.05	<0.05	0%	
Fenitrothion	LB055478	mg/kg	0.05	<0.05	0%	
Malathion	LB055478	mg/kg	0.05	<0.05	0%	
Methidathion	LB055478	mg/kg	0.05	<0.05	0%	NA
Parathion-ethyl (Parathion)	LB055478	mg/kg	0.05	<0.05	0%	119%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
d14-p-terphenyl (Surrogate)	LB055478	%	-	126%	12%	124%

Low Level PAH (Poly Aromatic Hydrocarbons) in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
1-methylnaphthalene	LB055478	mg/kg	0.01	<0.01	0%	
2-methylnaphthalene	LB055478	mg/kg	0.01	<0.01	7%	
Acenaphthene	LB055478	mg/kg	0.01	<0.01	0%	
Acenaphthylene	LB055478	mg/kg	0.01	<0.01	41%	
Anthracene	LB055478	mg/kg	0.01	<0.01	45%	
Benzo(a)anthracene	LB055478	mg/kg	0.01	<0.01	48%	102%
Benzo(a)pyrene	LB055478	mg/kg	0.01	<0.01	30%	115%
Benzo(b&k)fluoranthene	LB055478	mg/kg	0.02	<0.02	29%	
Benzo(ghi)perylene	LB055478	mg/kg	0.01	<0.01	19%	
Chrysene	LB055478	mg/kg	0.01	<0.01	36%	
Pyrene	LB055478	mg/kg	0.01	<0.01	36%	105%
Dibenzo(a&h)anthracene	LB055478	mg/kg	0.01	<0.01	43%	
Fluoranthene	LB055478	mg/kg	0.01	<0.01	26%	
Naphthalene	LB055478	mg/kg	0.01	<0.01	23%	72%
Phenanthrene	LB055478	mg/kg	0.01	<0.01	6%	94%
Fluorene	LB055478	mg/kg	0.01	<0.01	0%	89%
Indeno(1,2,3-cd)pyrene	LB055478	mg/kg	0.01	<0.01	21%	

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
d14-p-terphenyl (Surrogate)	LB055478	%	-	126%	12%	124%

MB blank results are compared to the Limit of Reporting
 LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
 DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

Low Level PCBs in Soil Method: ME-(AU)-[ENV]AN400/AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
PCB Congener C101	LB055478	mg/kg	0.004	<0.004	0%	
PCB Congener C118	LB055478	mg/kg	0.004	<0.004	0%	
PCB Congener C138	LB055478	mg/kg	0.004	<0.004	0%	
PCB Congener C153	LB055478	mg/kg	0.004	<0.004	0%	
PCB Congener C180	LB055478	mg/kg	0.004	<0.004	0%	
PCB Congener C28	LB055478	mg/kg	0.02	<0.02	0%	
PCB Congener C52	LB055478	mg/kg	0.01	<0.01	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
d14-p-terphenyl (Surrogate)	LB055478	%	-	126%	12%	124%

Mercury in Soil Method: ME-(AU)-[ENV]AN312

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Mercury	LB055578	mg/kg	0.05	<0.05	15%	126%	117%	6%

Moisture Content Method: ME-(AU)-[ENV]AN002

Parameter	QC Reference	Units	LOR	DUP %RPD
% Moisture	LB055500	%	0.5	0 - 3%

Speciated Phenols in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Phenol	LB055475	mg/kg	0.5	<0.5	0%	98%	99%	3%
2-methyl phenol (o-cresol)	LB055475	mg/kg	0.5	<0.5	0%	96%	100%	6%
3/4-methyl phenol (m/p-cresol)	LB055475	mg/kg	1	<1	0%			
Total Cresol	LB055475	mg/kg	1.5	<1.5	0%			
2-chlorophenol	LB055475	mg/kg	0.5	<0.5	0%			
2,4-dimethyl phenol	LB055475	mg/kg	0.5	<0.5	0%			
2,6-dichlorophenol	LB055475	mg/kg	0.5	<0.5	0%			
2,4-dichlorophenol	LB055475	mg/kg	0.5	<0.5	0%	101%	102%	5%
2,4,6-trichlorophenol	LB055475	mg/kg	0.5	<0.5	0%	115%	117%	4%
2-nitrophenol	LB055475	mg/kg	0.5	<0.5	0%			
4-nitrophenol	LB055475	mg/kg	1	<1	0%			
2,4,5-trichlorophenol	LB055475	mg/kg	0.5	<0.5	0%			
2,3,4,6-tetrachlorophenol	LB055475	mg/kg	0.5	<0.5	0%			
Pentachlorophenol	LB055475	mg/kg	0.5	<0.5	0%	129%	120%	2%
2,4-dinitrophenol	LB055475	mg/kg	2	<2	0%			
2,3,4,6/2,3,5,6-tetrachlorophenol	LB056126	mg/kg	1	<1	0%			

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
2,4,6-Tribromophenol (Surrogate)	LB055475	%	-	128%	9%	118%	123%	2%
d14-p-terphenyl (Surrogate)	LB056126	%	-	125%	12%			

MB blank results are compared to the Limit of Reporting
 LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
 DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Total Carbon and TOC by LECO Furnace Method: ME-(AU)-[ENV]AN203

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Total Organic Carbon (TOC)	LB055458	%w/w	0.02	<0.02	5%	90 - 93%

Total Cyanide in soil by Discrete Analyser (Aquakem) Method: ME-(AU)-[ENV]AN077/AN287

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Total Cyanide	LB055562	mg/kg	0.1	<0.1	0%	101%	44%

Total Kjeldahl Nitrogen and Total Nitrogen in Soil/Sludges Method: ME-(AU)-[ENV]AN281

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Total Kjeldahl Nitrogen*	LB055492	mg/kg	5	<5	1%	101%

Total Oxidised Nitrogen NOx (Water Extract) in Soil Method: ME-(AU)-[ENV]AN258

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Water Soluble Nitrate/Nitrite Nitrogen, NOx as N*	LB056007	mg/kg	1	<1	100%
Water Soluble Nitrite Nitrogen, NO ₂ as N*	LB056007	mg/kg	1	<1	98%
Water Soluble Nitrate Nitrogen, NO ₃ as N*	LB056007	mg/kg	1	<1	NA

Total Recoverable Metals in Soil by ICPOES Method: ME-(AU)-[ENV]AN/320AN321

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Phosphorus, P	LB055578	mg/kg	10	<10	0%	106%		
Aluminium, Al	LB055578	mg/kg	50	<50	5%	84%		
Arsenic, As	LB055578	mg/kg	1	<1	12%	113%	100%	8%
Boron, B	LB055578	mg/kg	5	<5	1%	NA		
Cadmium, Cd	LB055578	mg/kg	0.1	<0.1	5%	114%		
Chromium, Cr	LB055578	mg/kg	0.5	<0.5	3%	92%	66%	19%
Copper, Cu	LB055578	mg/kg	0.5	<0.5	3%	86%	90%	6%
Iron, Fe	LB055578	mg/kg	50	<50	4%	125%		
Lead, Pb	LB055578	mg/kg	1	<1	5 - 11%	114%	95%	6%
Magnesium, Mg	LB055578	mg/kg	10	<10	2%	91%		
Manganese, Mn	LB055578	mg/kg	1	<1	1%	99%		
Molybdenum, Mo	LB055578	mg/kg	1	<1	1%	106%		
Nickel, Ni	LB055578	mg/kg	0.5	<0.5	3%	111%	92%	5%
Selenium, Se	LB055578	mg/kg	1	<1	0%	NA		
Tin, Sn	LB055578	mg/kg	3	<3	10%	108%		
Zinc, Zn	LB055578	mg/kg	2	<2	5%	98%	88%	6%

MB blank results are compared to the Limit of Reporting
 LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
 DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

TRH (Total Recoverable Hydrocarbons) in Soil Method: ME-(AU)-[ENV]AN403

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
TRH C10-C14	LB055475	mg/kg	20	<20	10%	84%
TRH C15-C28	LB055475	mg/kg	45	<45	9%	94%
TRH C29-C36	LB055475	mg/kg	45	<45	14%	93%

TRH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD
TRH >C10-C16 (F2)	LB055475	mg/kg	25	<25	3%
TRH >C16-C34 (F3)	LB055475	mg/kg	90	<90	7%
TRH >C34-C40 (F4)	LB055475	mg/kg	120	<120	0%

Ultra Low Level OC Pesticides in Soil Method: ME-(AU)-[ENV]AN400/AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Aldrin	LB055478	mg/kg	0.001	<0.001	0%	74%
Alpha BHC	LB055478	mg/kg	0.001	<0.001	0%	
Alpha Chlordane	LB055478	mg/kg	0.001	<0.001	0%	
Alpha Endosulfan	LB055478	mg/kg	0.001	<0.001	0%	
Beta BHC	LB055478	mg/kg	0.001	<0.001	0%	
Beta Endosulfan	LB055478	mg/kg	0.001	<0.001	0%	
Chlordane (alpha + gamma chlordane)	LB055478	mg/kg	0.001	<0.001	0%	
Delta BHC	LB055478	mg/kg	0.001	<0.001	0%	
Dieldrin	LB055478	mg/kg	0.001	<0.001	0%	85%
Endosulfan sulphate	LB055478	mg/kg	0.001	<0.001	0%	
Endrin	LB055478	mg/kg	0.001	<0.001	0%	101%
Endrin Aldehyde	LB055478	mg/kg	0.001	<0.001	0%	
Endrin Ketone	LB055478	mg/kg	0.001	<0.001	0%	
Gamma Chlordane	LB055478	mg/kg	0.001	<0.001	0%	88%
HCB (Hexachlorobenzene)	LB055478	mg/kg	0.001	<0.001	0%	NA
Heptachlor	LB055478	mg/kg	0.001	<0.001	0%	51%
Heptachlor epoxide	LB055478	mg/kg	0.001	<0.001	0%	
Lindane	LB055478	mg/kg	0.001	<0.001	0%	55%
Methoxychlor	LB055478	mg/kg	0.001	<0.001	0%	
Mirex	LB055478	mg/kg	0.001	<0.001	0%	NA
Oxychlordane	LB055478	mg/kg	0.001	<0.001	0%	
p,p'-DDD	LB055478	mg/kg	0.001	<0.001	0%	
p,p'-DDE	LB055478	mg/kg	0.001	<0.001	0%	101%
p,p'-DDT	LB055478	mg/kg	0.001	<0.001	0%	
Total Aldrin and Dieldrin VIC EPA	LB055478	mg/kg	0.01	<0.01		
Total BHC	LB055478	mg/kg	0.004	<0.004		
Total CLP OC Pesticides	LB055478	mg/kg	0.01	<0.01		
Total OC VIC EPA	LB055478	mg/kg	0.01	<0.01		
Total Other OC VIC EPA	LB055478	mg/kg	0.1	<0.1		
Total p,p' DDE/DDT/DDD	LB055478	mg/kg	0.003	<0.003		

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
d14-p-terphenyl (Surrogate)	LB055478	%	-	126%	12%	124%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

VOC's in Soil Method: ME-(AU)-[ENV]AN433/AN434

Fumigants

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery	MS %Recovery	MSD %RPD
2,2-dichloropropane	LB055940	mg/kg	0.1	<0.1			
1,2-dichloropropane	LB055940	mg/kg	0.1	<0.1	108%	96%	1%
cis-1,3-dichloropropene	LB055940	mg/kg	0.1	<0.1	101%	91%	2%
trans-1,3-dichloropropene	LB055940	mg/kg	0.1	<0.1	105%	97%	1%
1,2-dibromoethane (EDB)	LB055940	mg/kg	0.1	<0.1			

Halogenated Aliphatics

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery	MS %Recovery	MSD %RPD
Dichlorodifluoromethane (CFC-12)	LB055940	mg/kg	1	<1			
Chloromethane	LB055940	mg/kg	1	<1			
Vinyl chloride (Chloroethene)	LB055940	mg/kg	0.1	<0.1			
Bromomethane	LB055940	mg/kg	1	<1			
Chloroethane	LB055940	mg/kg	1	<1			
Trichlorofluoromethane	LB055940	mg/kg	1	<1			
Iodomethane	LB055940	mg/kg	5	<5			
1,1-dichloroethene	LB055940	mg/kg	0.1	<0.1	109%	81%	8%
Dichloromethane (Methylene chloride)	LB055940	mg/kg	0.5	<0.5			
Allyl chloride	LB055940	mg/kg	0.1	<0.1			
trans-1,2-dichloroethene	LB055940	mg/kg	0.1	<0.1	98%	75%	1%
1,1-dichloroethane	LB055940	mg/kg	0.1	<0.1	108%	87%	1%
cis-1,2-dichloroethene	LB055940	mg/kg	0.1	<0.1			
Bromochloromethane	LB055940	mg/kg	0.1	<0.1			
1,2-dichloroethane	LB055940	mg/kg	0.1	<0.1	117%	106%	1%
1,1,1-trichloroethane	LB055940	mg/kg	0.1	<0.1			
1,1-dichloropropene	LB055940	mg/kg	0.1	<0.1			
Carbon tetrachloride	LB055940	mg/kg	0.1	<0.1	94%	76%	4%
Dibromomethane	LB055940	mg/kg	0.1	<0.1			
Trichloroethene (Trichloroethylene -TCE)	LB055940	mg/kg	0.1	<0.1	104%	88%	3%
1,1,2-trichloroethane	LB055940	mg/kg	0.1	<0.1	119%	110%	0%
1,3-dichloropropane	LB055940	mg/kg	0.1	<0.1			
Tetrachloroethene (Perchloroethylene,PCE)	LB055940	mg/kg	0.1	<0.1			
1,1,1,2-tetrachloroethane	LB055940	mg/kg	0.1	<0.1			
cis-1,4-dichloro-2-butene	LB055940	mg/kg	1	<1			
1,1,2,2-tetrachloroethane	LB055940	mg/kg	0.1	<0.1	111%	105%	2%
1,2,3-trichloropropane	LB055940	mg/kg	0.1	<0.1			
trans-1,4-dichloro-2-butene	LB055940	mg/kg	1	<1			
1,2-dibromo-3-chloropropane	LB055940	mg/kg	0.1	<0.1			
Hexachlorobutadiene	LB055940	mg/kg	0.1	<0.1			

Halogenated Aromatics

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery	MS %Recovery	MSD %RPD
Chlorobenzene	LB055940	mg/kg	0.1	<0.1	107%	97%	1%
Bromobenzene	LB055940	mg/kg	0.1	<0.1			
2-chlorotoluene	LB055940	mg/kg	0.1	<0.1			
4-chlorotoluene	LB055940	mg/kg	0.1	<0.1			
1,3-dichlorobenzene	LB055940	mg/kg	0.1	<0.1	101%	93%	1%
1,4-dichlorobenzene	LB055940	mg/kg	0.1	<0.1	109%	102%	1%
1,2-dichlorobenzene	LB055940	mg/kg	0.1	<0.1	104%	100%	1%
1,2,4-trichlorobenzene	LB055940	mg/kg	0.1	<0.1			
1,2,3-trichlorobenzene	LB055940	mg/kg	0.1	<0.1			

Monocyclic Aromatic Hydrocarbons

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared to the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

VOC's in Soil Method: ME-(AU)-[ENV]AN433/AN434 (continued)

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Benzene	LB055940	mg/kg	0.1	<0.1	0%		87%	1%
Toluene	LB055940	mg/kg	0.1	<0.1	0%	102%	90%	2%
Ethylbenzene	LB055940	mg/kg	0.1	<0.1	0%	99%	87%	2%
m/p-xylene	LB055940	mg/kg	0.2	<0.2	0%			
o-xylene	LB055940	mg/kg	0.1	<0.1	0%			
Styrene (Vinyl benzene)	LB055940	mg/kg	0.1	<0.1				
Isopropylbenzene (Cumene)	LB055940	mg/kg	0.1	<0.1				
n-propylbenzene	LB055940	mg/kg	0.1	<0.1				
1,3,5-trimethylbenzene	LB055940	mg/kg	0.1	<0.1				
tert-butylbenzene	LB055940	mg/kg	0.1	<0.1				
1,2,4-trimethylbenzene	LB055940	mg/kg	0.1	<0.1				
sec-butylbenzene	LB055940	mg/kg	0.1	<0.1				
p-isopropyltoluene	LB055940	mg/kg	0.1	<0.1				
n-butylbenzene	LB055940	mg/kg	0.1	<0.1				

Nitrogenous Compounds

Parameter	QC Reference	Units	LOR	MB
Acrylonitrile	LB055940	mg/kg	0.1	<0.1

Oxygenated Compounds

Parameter	QC Reference	Units	LOR	MB
Acetone (2-propanone)	LB055940	mg/kg	10	<10
MtBE (Methyl-tert-butyl ether)	LB055940	mg/kg	0.5	<0.5
Vinyl acetate	LB055940	mg/kg	10	<10
MEK (2-butanone)	LB055940	mg/kg	10	<10
MIBK (4-methyl-2-pentanone)	LB055940	mg/kg	1	<1
2-hexanone (MBK)	LB055940	mg/kg	5	<5

Polycyclic VOCs

Parameter	QC Reference	Units	LOR	MB	DUP %RPD
Naphthalene	LB055940	mg/kg	0.1	<0.1	0%

Sulphonated Compounds

Parameter	QC Reference	Units	LOR	MB
Carbon disulfide	LB055940	mg/kg	0.5	<0.5

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Dibromofluoromethane (Surrogate)	LB055940	%	-	118%	2%	120%	120%	12%
d4-1,2-dichloroethane (Surrogate)	LB055940	%	-	121%	7%	105%	105%	9%
d8-toluene (Surrogate)	LB055940	%	-	110%	2%	111%	111%	5%
Bromofluorobenzene (Surrogate)	LB055940	%	-	112%	10%	112%	112%	8%

Trihalomethanes

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery	MS %Recovery	MSD %RPD
Chloroform	LB055940	mg/kg	0.1	<0.1	110%	96%	1%
Bromodichloromethane	LB055940	mg/kg	0.1	<0.1	112%	102%	1%
Chlorodibromomethane	LB055940	mg/kg	0.1	<0.1	114%	106%	0%
Bromoform	LB055940	mg/kg	0.1	<0.1	116%	109%	1%

MB blank results are compared to the Limit of Reporting
 LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
 DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Volatile Petroleum Hydrocarbons in Soil Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
TRH C6-C9	LB055940	mg/kg	20	<20	0%	130%	106%	13%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Dibromofluoromethane (Surrogate)	LB055940	%	-	118%	2%	101%	106%	12%
d4-1,2-dichloroethane (Surrogate)	LB055940	%	-	121%	7%	113%	115%	9%
d8-toluene (Surrogate)	LB055940	%	-	110%	2%	119%	105%	5%
Bromofluorobenzene (Surrogate)	LB055940	%	-	112%	10%	119%	103%	8%

VPH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD
TRH C6-C10 minus BTEX (F1)	LB055940	mg/kg	25	<25	0%

Water Soluble ortho Phosphorus in Soil Method: ME-(AU)-[ENV]AN278

Parameter	QC Reference	Units	LOR	MB
Water Soluble ortho Phosphorus*	LB056001	mg/kg	0.02	<0.02

METHOD

METHODOLOGY SUMMARY

AN002	Soil, sediment or biosolids is extracted 1:10 in 2M KCl followed by analysis of the extract for ammonia by method AN261.
AN045	A portion of sample is digested with Nitric acid and Hydrogen Peroxide over time and then with Hydrochloric acid through several heating and cooling cycles. It provides a strong oxidising medium for bringing metal analytes into solution according to USEPA3050, after filtration the solution is presented for analysis on AAS or ICP.
AN077	Hydrogen cyanide is liberated from an acidified alkali soil extract by distillation and purging with air. The hydrogen cyanide gas is then collected by passing it through a sodium hydroxide scrubbing solution. The scrubbing solution will then be analysed for cyanide by the appropriate method.
AN088	Orbital rolling for Organic pollutants are extracted from soil/sediment by transferring an appropriate mass of sample to a clear soil jar and extracting with 1:1 Dichloromethane/Acetone. Orbital Rolling method is intended for the extraction of semi-volatile organic compounds from soil/sediment samples, and is based somewhat on USEPA method 3570 (Micro Organic extraction and sample preparation). Method 3700.
AN203	The carbon in the sample is oxidised to carbon dioxide gas in a tube furnace using oxygen to aid the oxidation process. The evolved carbon dioxide is measure by an infra red cell. The infra red cell output is calibrated against the value of a known standard sample to provide the total carbon value of the unknown sample.
AN203	The sample is pretreated with hydrochloric acid to remove inorganic carbon/carbonate. The the residual non-carbonate carbon is oxidised to carbon dioxide gas in a tube furnace using oxygen to aid the oxidation process. The evolved carbon dioxide is measure by an infra red cell. The infra red cell output is calibrated against the value of a known standard sample to provide the total organic carbon value of the unknown sample.
AN258	Nitrate and Nitrite by FIA:: In an acidic medium, nitrate is reduced quantitatively to nitrite by cadmium metal. This nitrite plus any original nitrite is determined as an intense red-pink azo dye at 540 nm following diazotisation with sulphanimide and subsequent coupling with N-(1-naphthyl) ethylenediamine dihydrochloride. Without the cadmium reduction only the original nitrite is determined. Reference APHA 4500-NO3- F.
AN261	Ammonia by Continuous Flow Analyser: Ammonium in a basic medium forms ammonia gas, which is separated from the sample matrix by diffusion through a polypropylene membrane. The ammonia is reacted with phenol and hypochlorite to form indophenol blue at an intensity proportional to the ammonia concentration. The blue colour is intensified with sodium nitroprusside and the absorbance measured at 630 nm. The sensitivity of the automated method is 10-20 times that of the macro method. Reference APHA 4500-NH3 H.
AN278	Reactive Phosphorus in extract by DA: Orthophosphate reacts with ammonium molybdate (Mo VI) and potassium antimonyl tartrate (Sb III) in acid medium to form an antimony-phosphomolybdate complex. This complex is subsequently reduced with ascorbic acid to form a blue colour and the absorbance is read at 880 nm. The sensitivity of the automated method is 10-20 times that of the macro method. Reference APHA 4500-P G
AN281	The sample is heated in the presence of Sulphuric acid, K ₂ SO ₄ and CuSO ₄ for two and half hours using a temperature controlled digestion block. Amino Nitrogen of many organic materials is converted to ammonium ion. Free ammonia also is converted to ammonium. The digest is cooled and placed on the Aquakem 250 discrete analyser for Ammonia determination.
AN287	A buffered distillate or water sample is treated with chloramine/barbituric acid reagents and the intensity of the colour developed is proportional to the cyanide concentration by Aquakem DA.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500

METHOD

METHODOLOGY SUMMARY

AN320/AN321	Metals by ICP-OES: Samples are preserved with 10% nitric acid for a wide range of metals and some non-metals. This solution is measured by Inductively Coupled Plasma. Solutions are aspirated into an argon plasma at 8000-10000K and emit characteristic energy or light as a result of electron transitions through unique energy levels. The emitted light is focused onto a diffraction grating where it is separated into components.
AN320/AN321	Photomultipliers or CCDs are used to measure the light intensity at specific wavelengths. This intensity is directly proportional to concentration. Corrections are required to compensate for spectral overlap between elements. Reference APHA 3120 B.
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the Draft NEPM 2011, >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is not corrected for Naphthalene.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependant on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN433/AN434/AN410	VOCs and C6-C9/C6-C10 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria. Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

IS	Insufficient sample for analysis.	QFH	QC result is above the upper tolerance
LNR	Sample listed, but not received.	QFL	QC result is below the lower tolerance
*	This analysis is not covered by the scope of accreditation.	-	The sample was not analysed for this analyte
^	Performed by outside laboratory.	NVL	Not Validated
LOR	Limit of Reporting		
↑↓	Raised or Lowered Limit of Reporting		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here:
<http://www.sgs.com.au/pv.sgsv3/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

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STATEMENT OF QA/QC PERFORMANCE

PE073244 R0

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Project **I12147 Burswood Stadium**
 Order Number **I12147**
 Samples **1**

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SGS Reference **PE073244 R0**
 Report Number **0000052626**
 Date Reported **27 Dec 2012**

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS Environmental Services' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client. This QA/QC Statement must be read in conjunction with the referenced Analytical Report. The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Extraction Date	Low Level Ammonia Nitrogen (soluble) in Soil, sediment or biosolids	1 item
	Total Oxidised Nitrogen NOx (Water Extract) in Soil	1 item
	Water Soluble ortho Phosphorus in Soil	1 item
Analysis Date	Low Level Ammonia Nitrogen (soluble) in Soil, sediment or biosolids	1 item
Duplicate	Low Level PAH (Poly Aromatic Hydrocarbons) in Soil	6 items
Matrix Spike	Total Cyanide in soil by Discrete Analyser (Aquakem)	1 item
	Total Recoverable Metals in Soil by ICPOES	1 item

SAMPLE SUMMARY

Sample counts by matrix	1 Soil	Type of documentation received	COC
Date documentation received	12/12/2012	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	20°C
Sample container provider	ALS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	1

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Acid Herbicides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB055513	11 Dec 2012	12 Dec 2012	25 Dec 2012	14 Dec 2012	23 Jan 2013	20 Dec 2012

Carbamates in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB056126	11 Dec 2012	12 Dec 2012	25 Dec 2012	24 Dec 2012	02 Feb 2013	24 Dec 2012

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB055505	11 Dec 2012	12 Dec 2012	11 Dec 2013	14 Dec 2012	11 Dec 2013	14 Dec 2012

Low Level Ammonia Nitrogen (soluble) in Soil, sediment or biosolids

Method: ME-(AU)-[ENV]AN002/AN261

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB056007	11 Dec 2012	12 Dec 2012	18 Dec 2012	21 Dec 2012†	18 Dec 2012	21 Dec 2012†

Low Level OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB055478	11 Dec 2012	12 Dec 2012	25 Dec 2012	14 Dec 2012	23 Jan 2013	24 Dec 2012

Low Level PAH (Poly Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB055478	11 Dec 2012	12 Dec 2012	25 Dec 2012	14 Dec 2012	23 Jan 2013	24 Dec 2012

Low Level PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB055478	11 Dec 2012	12 Dec 2012	25 Dec 2012	14 Dec 2012	23 Jan 2013	24 Dec 2012

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB055578	11 Dec 2012	12 Dec 2012	08 Jan 2013	17 Dec 2012	08 Jan 2013	17 Dec 2012

Molsture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB055500	11 Dec 2012	12 Dec 2012	25 Dec 2012	14 Dec 2012	19 Dec 2012	17 Dec 2012

Speciated Phenols in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB055475	11 Dec 2012	12 Dec 2012	25 Dec 2012	14 Dec 2012	23 Jan 2013	19 Dec 2012
		LB056126	11 Dec 2012	12 Dec 2012	25 Dec 2012	24 Dec 2012	02 Feb 2013	19 Dec 2012

Total Carbon and TOC by LECO Furnace

Method: ME-(AU)-[ENV]AN203

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB055458	11 Dec 2012	12 Dec 2012	25 Dec 2012	14 Dec 2012	25 Dec 2012	19 Dec 2012

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB055562	11 Dec 2012	12 Dec 2012	18 Dec 2012	17 Dec 2012	24 Dec 2012	20 Dec 2012

Total Kjeldahl Nitrogen and Total Nitrogen in Soil/Sludges

Method: ME-(AU)-[ENV]AN281

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB055492	11 Dec 2012	12 Dec 2012	18 Dec 2012	14 Dec 2012	18 Dec 2012	18 Dec 2012

Total Oxidised Nitrogen NOx (Water Extract) in Soil

Method: ME-(AU)-[ENV]AN258

Sample Name	Sample No.	QC Ref
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SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Total Oxidised Nitrogen NOx (Water Extract) in Soil (continued)

Method: ME-(AU)-[ENV]AN258

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB056007	11 Dec 2012	12 Dec 2012	18 Dec 2012	21 Dec 2012†	23 Dec 2012	21 Dec 2012

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN/320AN321

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB055578	11 Dec 2012	12 Dec 2012	09 Jun 2013	17 Dec 2012	09 Jun 2013	17 Dec 2012

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB055475	11 Dec 2012	12 Dec 2012	25 Dec 2012	14 Dec 2012	23 Jan 2013	20 Dec 2012

Ultra Low Level OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB055478	11 Dec 2012	12 Dec 2012	25 Dec 2012	14 Dec 2012	23 Jan 2013	24 Dec 2012

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB055940	11 Dec 2012	12 Dec 2012	25 Dec 2012	20 Dec 2012	29 Jan 2013	20 Dec 2012

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB055940	11 Dec 2012	12 Dec 2012	25 Dec 2012	20 Dec 2012	29 Jan 2013	20 Dec 2012

Water Soluble ortho Phosphorus in Soil

Method: ME-(AU)-[ENV]AN278

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZC02	PE073244.001	LB056001	11 Dec 2012	12 Dec 2012	18 Dec 2012	21 Dec 2012†	23 Dec 2012	21 Dec 2012

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Acid Herbicides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4-dichlorophenylacetic acid (Surrogate)	TZZC02	PE073244.001	%	70 - 130%	93

Carbamates in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	TZZC02	PE073244.001	%	70 - 130%	115

Low Level OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	TZZC02	PE073244.001	%	70 - 130%	115

Low Level PAH (Poly Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	TZZC02	PE073244.001	%	70 - 130%	115

Low Level PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	TZZC02	PE073244.001	%	70 - 130%	115

Speciated Phenols in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4,6-Tribromophenol (Surrogate)	TZZC02	PE073244.001	%	70 - 130%	118
d14-p-terphenyl (Surrogate)	TZZC02	PE073244.001	%	70 - 130%	115

Ultra Low Level OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	TZZC02	PE073244.001	%	70 - 130%	115

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TZZC02	PE073244.001	%	60 - 130%	96
d4-1,2-dichloroethane (Surrogate)	TZZC02	PE073244.001	%	60 - 130%	110
d8-toluene (Surrogate)	TZZC02	PE073244.001	%	60 - 130%	95
Dibromofluoromethane (Surrogate)	TZZC02	PE073244.001	%	60 - 130%	103

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TZZC02	PE073244.001	%	60 - 130%	96
d4-1,2-dichloroethane (Surrogate)	TZZC02	PE073244.001	%	60 - 130%	110
d8-toluene (Surrogate)	TZZC02	PE073244.001	%	60 - 130%	95
Dibromofluoromethane (Surrogate)	TZZC02	PE073244.001	%	60 - 130%	103

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Acid Herbicides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB055513.001	Clopyralid	mg/kg	0.2	<0.2
	4-chlorophenoxy acetic acid (4-CPA)	mg/kg	0.5	<0.5
	Dicamba	mg/kg	0.2	<0.2
	MCPPP (Mecoprop)	mg/kg	0.2	<0.2
	MCPA	mg/kg	0.2	<0.2
	2,6-D	mg/kg	0.2	<0.2
	Dichlorprop (2,4-DP)	mg/kg	0.2	<0.2
	2,4-D	mg/kg	0.2	<0.2
	Bromoxynil	mg/kg	0.2	<0.2
	Triclopyr	mg/kg	0.2	<0.2
	2,4,6-T	mg/kg	0.2	<0.2
	2,4,5-TP (Silvex, Fenopop)	mg/kg	0.2	<0.2
	2,4,5-T	mg/kg	0.2	<0.2
	MCPB	mg/kg	0.5	<0.5
	Fluroxypyr	mg/kg	0.2	<0.2
	Dinoseb	mg/kg	0.2	<0.2
	2,4-DB	mg/kg	0.2	<0.2
loxynil	mg/kg	0.5	<0.5	
Picloram	mg/kg	0.5	<0.5	
Surrogates	2,4-dichlorophenylacetic acid (Surrogate)	%	-	90

Carbamates in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB056126.001	Carbamates			
	Carbofuran	mg/kg	0.5	<0.5
	Carbaryl	mg/kg	0.5	<0.5
Surrogates	d14-p-terphenyl (Surrogate)	%	-	126

Low Level Ammonia Nitrogen (soluble) in Soil, sediment or biosolids

Method: ME-(AU)-[ENV]AN002/AN261

Sample Number	Parameter	Units	LOR	Result
LB056007.001	Water Soluble Ammonia Nitrogen, NH ₃ as N*	mg/kg	0.025	<0.025

Low Level OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	
LB055478.001	Azinphos-methyl (Guthion)	mg/kg	0.05	<0.05	
	Bromophos Ethyl	mg/kg	0.05	<0.01	
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.05	<0.02	
	Diazinon (Dimpylate)	mg/kg	0.05	<0.05	
	Dichlorvos	mg/kg	0.1	<0.1	
	Dimethoate	mg/kg	0.05	<0.05	
	Ethion	mg/kg	0.05	<0.05	
	Fenitrothion	mg/kg	0.05	<0.05	
	Malathion	mg/kg	0.05	<0.05	
	Methidathion	mg/kg	0.05	<0.05	
	Parathion-ethyl (Parathion)	mg/kg	0.05	<0.05	
	Surrogates	d14-p-terphenyl (Surrogate)	%	-	126

Low Level PAH (Poly Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB055478.001	1-methylnaphthalene	mg/kg	0.01	<0.01
	2-methylnaphthalene	mg/kg	0.01	<0.01
	Acenaphthene	mg/kg	0.01	<0.01
	Acenaphthylene	mg/kg	0.01	<0.01
	Anthracene	mg/kg	0.01	<0.01
	Benzo(a)anthracene	mg/kg	0.01	<0.01
	Benzo(a)pyrene	mg/kg	0.01	<0.01
	Benzo(b&k)fluoranthene	mg/kg	0.02	<0.02
	Benzo(ghi)perylene	mg/kg	0.01	<0.01
	Chrysene	mg/kg	0.01	<0.01
	Pyrene	mg/kg	0.01	<0.01
	Dibenzo(a&h)anthracene	mg/kg	0.01	<0.01
	Fluoranthene	mg/kg	0.01	<0.01

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Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level PAH (Poly Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB055478.001	Naphthalene	mg/kg	0.01	<0.01
	Phenanthrene	mg/kg	0.01	<0.01
	Fluorene	mg/kg	0.01	<0.01
	Indeno(1,2,3-cd)pyrene	mg/kg	0.01	<0.01
Surrogates	d14-p-terphenyl (Surrogate)	%	-	126

Low Level PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result
LB055478.001	PCB Congener C101	mg/kg	0.004	<0.004
	PCB Congener C118	mg/kg	0.004	<0.004
	PCB Congener C138	mg/kg	0.004	<0.004
	PCB Congener C153	mg/kg	0.004	<0.004
	PCB Congener C180	mg/kg	0.004	<0.004
	PCB Congener C28	mg/kg	0.02	<0.02
	PCB Congener C52	mg/kg	0.01	<0.01
Surrogates	d14-p-terphenyl (Surrogate)	%	-	126

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB055578.001	Mercury	mg/kg	0.05	<0.05

Speciated Phenols in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB055475.001	Phenol	mg/kg	0.5	<0.5
	2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5
	3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1
	2-chlorophenol	mg/kg	0.5	<0.5
	2,4-dimethyl phenol	mg/kg	0.5	<0.5
	2,6-dichlorophenol	mg/kg	0.5	<0.5
	2,4-dichlorophenol	mg/kg	0.5	<0.5
	2,4,6-trichlorophenol	mg/kg	0.5	<0.5
	2-nitrophenol	mg/kg	0.5	<0.5
	4-nitrophenol	mg/kg	1	<1
	2,4,5-trichlorophenol	mg/kg	0.5	<0.5
	Pentachlorophenol	mg/kg	0.5	<0.5
	2,4-dinitrophenol	mg/kg	2	<2
	Surrogates	2,4,6-Tribromophenol (Surrogate)	%	-
LB056126.001	2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1
	Surrogates	d14-p-terphenyl (Surrogate)	%	-

Total Carbon and TOC by LECO Furnace

Method: ME-(AU)-[ENV]AN203

Sample Number	Parameter	Units	LOR	Result
LB055458.001	Total Organic Carbon (TOC)	%w/w	0.02	<0.02

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

Sample Number	Parameter	Units	LOR	Result
LB055562.001	Total Cyanide	mg/kg	0.1	<0.1

Total Kjeldahl Nitrogen and Total Nitrogen in Soil/Sludges

Method: ME-(AU)-[ENV]AN281

Sample Number	Parameter	Units	LOR	Result
LB055492.001	Total Kjeldahl Nitrogen*	mg/kg	5	<5

Total Oxidised Nitrogen NOx (Water Extract) in Soil

Method: ME-(AU)-[ENV]AN258

Sample Number	Parameter	Units	LOR
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Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Total Oxidised Nitrogen NOx (Water Extract) in Soil (continued)

Method: ME-(AU)-[ENV]AN258

Sample Number	Parameter	Units	LOR	Result
LB056007.001	Water Soluble Nitrate/Nitrite Nitrogen, NOx as N*	mg/kg	1	<1
	Water Soluble Nitrite Nitrogen, NO ₂ as N*	mg/kg	1	<1
	Water Soluble Nitrate Nitrogen, NO ₃ as N*	mg/kg	1	<1

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN320AN321

Sample Number	Parameter	Units	LOR	Result
LB055578.001	Phosphorus, P	mg/kg	10	<10
	Aluminium, Al	mg/kg	50	<50
	Arsenic, As	mg/kg	1	<1
	Boron, B	mg/kg	5	<5
	Cadmium, Cd	mg/kg	0.1	<0.1
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Iron, Fe	mg/kg	50	<50
	Lead, Pb	mg/kg	1	<1
	Magnesium, Mg	mg/kg	10	<10
	Manganese, Mn	mg/kg	1	<1
	Molybdenum, Mo	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Selenium, Se	mg/kg	1	<1
	Tin, Sn	mg/kg	3	<3
Zinc, Zn	mg/kg	2	<2	

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB055475.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45

Ultra Low Level OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result
LB055478.001	Aldrin	mg/kg	0.001	<0.001
	Alpha BHC	mg/kg	0.001	<0.001
	Alpha Chlordane	mg/kg	0.001	<0.001
	Alpha Endosulfan	mg/kg	0.001	<0.001
	Beta BHC	mg/kg	0.001	<0.001
	Beta Endosulfan	mg/kg	0.001	<0.001
	Chlordane (alpha + gamma chlordane)	mg/kg	0.001	<0.001
	Delta BHC	mg/kg	0.001	<0.001
	Dieldrin	mg/kg	0.001	<0.001
	Endosulfan sulphate	mg/kg	0.001	<0.001
	Endrin	mg/kg	0.001	<0.001
	Endrin Aldehyde	mg/kg	0.001	<0.001
	Endrin Ketone	mg/kg	0.001	<0.001
	Gamma Chlordane	mg/kg	0.001	<0.001
	HCB (Hexachlorobenzene)	mg/kg	0.001	<0.001
	Heptachlor	mg/kg	0.001	<0.001
	Heptachlor epoxide	mg/kg	0.001	<0.001
	Lindane	mg/kg	0.001	<0.001
	Methoxychlor	mg/kg	0.001	<0.001
	Mirex	mg/kg	0.001	<0.001
	Oxychlordane	mg/kg	0.001	<0.001
	p,p'-DDD	mg/kg	0.001	<0.001
	p,p'-DDE	mg/kg	0.001	<0.001
p,p'-DDT	mg/kg	0.001	<0.001	

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number	Parameter	Units	LOR	Result
LB055940.001	Fumigants			
	2,2-dichloropropane	mg/kg	0.1	<0.1
	1,2-dichloropropane	mg/kg	0.1	<0.1
	cis-1,3-dichloropropene	mg/kg	0.1	<0.1
	trans-1,3-dichloropropene	mg/kg	0.1	<0.1
1,2-dibromoethane (EDB)	mg/kg	0.1	<0.1	

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Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number	Parameter	Units	LOR	Result	
LB055940.001	Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1
		Chloromethane	mg/kg	1	<1
		Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1
		Bromomethane	mg/kg	1	<1
		Chloroethane	mg/kg	1	<1
		Trichlorofluoromethane	mg/kg	1	<1
		Iodomethane	mg/kg	5	<5
		1,1-dichloroethene	mg/kg	0.1	<0.1
		Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5
		Allyl chloride	mg/kg	0.1	<0.1
		trans-1,2-dichloroethene	mg/kg	0.1	<0.1
		1,1-dichloroethane	mg/kg	0.1	<0.1
		cis-1,2-dichloroethene	mg/kg	0.1	<0.1
		Bromochloromethane	mg/kg	0.1	<0.1
		1,2-dichloroethane	mg/kg	0.1	<0.1
		1,1-dichloropropene	mg/kg	0.1	<0.1
		Carbon tetrachloride	mg/kg	0.1	<0.1
		Dibromomethane	mg/kg	0.1	<0.1
		Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	<0.1
		1,1,2-trichloroethane	mg/kg	0.1	<0.1
		1,3-dichloropropane	mg/kg	0.1	<0.1
		Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	<0.1
		1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1
		cis-1,4-dichloro-2-butene	mg/kg	1	<1
		1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1
	1,2,3-trichloropropane	mg/kg	0.1	<0.1	
	trans-1,4-dichloro-2-butene	mg/kg	1	<1	
	1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1	
	Hexachlorobutadiene	mg/kg	0.1	<0.1	
	Halogenated Aromatics	Chlorobenzene	mg/kg	0.1	<0.1
		Bromobenzene	mg/kg	0.1	<0.1
		2-chlorotoluene	mg/kg	0.1	<0.1
		4-chlorotoluene	mg/kg	0.1	<0.1
		1,3-dichlorobenzene	mg/kg	0.1	<0.1
		1,4-dichlorobenzene	mg/kg	0.1	<0.1
		1,2-dichlorobenzene	mg/kg	0.1	<0.1
		1,2,4-trichlorobenzene	mg/kg	0.1	<0.1
		1,2,3-trichlorobenzene	mg/kg	0.1	<0.1
		Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1
	Toluene		mg/kg	0.1	<0.1
	Ethylbenzene		mg/kg	0.1	<0.1
	m/p-xylene		mg/kg	0.2	<0.2
	o-xylene		mg/kg	0.1	<0.1
	Styrene (Vinyl benzene)		mg/kg	0.1	<0.1
	Isopropylbenzene (Cumene)		mg/kg	0.1	<0.1
n-propylbenzene	mg/kg		0.1	<0.1	
1,3,5-trimethylbenzene	mg/kg		0.1	<0.1	
tert-butylbenzene	mg/kg		0.1	<0.1	
1,2,4-trimethylbenzene	mg/kg		0.1	<0.1	
sec-butylbenzene	mg/kg		0.1	<0.1	
p-isopropyltoluene	mg/kg		0.1	<0.1	
n-butylbenzene	mg/kg		0.1	<0.1	
Nitrogenous Compounds	Acrylonitrile		mg/kg	0.1	<0.1
Oxygenated Compounds	Acetone (2-propanone)	mg/kg	10	<10	
	MtBE (Methyl-tert-butyl ether)	mg/kg	0.5	<0.5	
	Vinyl acetate	mg/kg	10	<10	
	MEK (2-butanone)	mg/kg	10	<10	
	MIBK (4-methyl-2-pentanone)	mg/kg	1	<1	
Polycyclic VOCs	2-hexanone (MBK)	mg/kg	5	<5	
	Naphthalene	mg/kg	0.1	<0.1	
Sulphonated	Carbon disulfide	mg/kg	0.5	<0.5	

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VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number	Parameter	Units	LOR	Result	
LB055940.001	Surrogates	Dibromofluoromethane (Surrogate)	%	-	118
		d4-1,2-dichloroethane (Surrogate)	%	-	121
		d8-toluene (Surrogate)	%	-	110
		Bromofluorobenzene (Surrogate)	%	-	112
	Trihalomethanes	Chloroform	mg/kg	0.1	<0.1
		Bromodichloromethane	mg/kg	0.1	<0.1
		Chlorodibromomethane	mg/kg	0.1	<0.1
	Bromoform	mg/kg	0.1	<0.1	

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number	Parameter	Units	LOR	Result	
LB055940.001	TRH C6-C9	mg/kg	20	<20	
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	118
		d4-1,2-dichloroethane (Surrogate)	%	-	121
		d8-toluene (Surrogate)	%	-	110
		Bromofluorobenzene (Surrogate)	%	-	112

Water Soluble ortho Phosphorus in Soil

Method: ME-(AU)-[ENV]AN278

Sample Number	Parameter	Units	LOR	Result
LB056001.001	Water Soluble ortho Phosphorus*	mg/kg	0.02	<0.02

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Acid Herbicides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
PE073244.001	LB055513.004	Clopyralid	mg/kg	0.2	<0.2	<0.2	200	0	
		4-chlorophenoxy acetic acid (4-CPA)	mg/kg	0.5	<0.5	<0.5	200	0	
		Dicamba	mg/kg	0.2	<0.2	<0.2	200	0	
		MCPP (Mecoprop)	mg/kg	0.2	<0.2	<0.2	200	0	
		MCPA	mg/kg	0.2	<0.2	<0.2	200	0	
		2,6-D	mg/kg	0.2	<0.2	<0.2	200	0	
		Dichlorprop (2,4-DP)	mg/kg	0.2	<0.2	<0.2	200	0	
		2,4-D	mg/kg	0.2	<0.2	<0.2	200	0	
		Bromoxynil	mg/kg	0.2	<0.2	<0.2	200	0	
		Triclopyr	mg/kg	0.2	<0.2	<0.2	200	0	
		2,4,6-T	mg/kg	0.2	<0.2	<0.2	200	0	
		2,4,5-TP (Silvex, Fenopop)	mg/kg	0.2	<0.2	<0.2	200	0	
		2,4,5-T	mg/kg	0.2	<0.2	<0.2	200	0	
		MCPB	mg/kg	0.5	<0.5	<0.5	200	0	
		Fluroxypyr	mg/kg	0.2	<0.2	<0.2	200	0	
		Dinoseb	mg/kg	0.2	<0.2	<0.2	200	0	
		2,4-DB	mg/kg	0.2	<0.2	<0.2	200	0	
		loxynil	mg/kg	0.5	<0.5	<0.5	200	0	
		Picloram	mg/kg	0.5	<0.5	<0.5	200	0	
		Surrogates	2,4-dichlorophenylacetic acid (Surrogate)	mg/kg	-	0.9	1.0	30	4

Carbamates in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
PE073244.001	LB056126.004	Carbamates	Carbofuran	mg/kg	0.5	<0.5	<0.5	200	0
			Carbaryl	mg/kg	0.5	<0.5	<0.5	200	0
		Surrogates	d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.7	30	12

Low Level OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
PE073244.001	LB055478.004	Azinphos-methyl (Guthion)	mg/kg	0.05	<0.05	<0.05	200	0	
		Bromophos Ethyl	mg/kg	0.05	<0.05	<0.05	200	0	
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.05	<0.05	<0.05	200	0	
		Diazinon (Dimpylate)	mg/kg	0.05	<0.05	<0.05	200	0	
		Dichlorvos	mg/kg	0.1	<0.1	<0.1	200	0	
		Dimethoate	mg/kg	0.05	<0.05	<0.05	200	0	
		Ethion	mg/kg	0.05	<0.05	<0.05	200	0	
		Fenitrothion	mg/kg	0.05	<0.07	<0.07	200	0	
		Malathion	mg/kg	0.05	<0.06	<0.06	200	0	
		Methidathion	mg/kg	0.05	<0.06	<0.06	200	0	
		Parathion-ethyl (Parathion)	mg/kg	0.05	<0.06	<0.06	200	0	
		Surrogates	d14-p-terphenyl (Surrogate)	%	-	115.0	130.0	30	12

Low Level PAH (Poly Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
PE073244.001	LB055478.004	1-methylnaphthalene	mg/kg	0.01	<0.05	<0.05	200	0	
		2-methylnaphthalene	mg/kg	0.01	0.05	0.05	49	7	
		Acenaphthene	mg/kg	0.01	<0.05	<0.05	200	0	
		Acenaphthylene	mg/kg	0.01	0.14	0.09	39	41 ⊕	
		Anthracene	mg/kg	0.01	0.13	0.08	39	45 ⊕	
		Benzo(a)anthracene	mg/kg	0.01	0.45	0.27	33	48 ⊕	
		Benzo(a)pyrene	mg/kg	0.01	0.63	0.46	32	30	
		Benzo(b&k)fluoranthene	mg/kg	0.02	1.1	0.79	32	29	
		Benzo(ghi)perylene	mg/kg	0.01	0.18	0.15	36	19	
		Chrysene	mg/kg	0.01	0.32	0.22	34	36 ⊕	
		Pyrene	mg/kg	0.01	0.94	0.65	31	36 ⊕	
		Dibenzo(a&h)anthracene	mg/kg	0.01	0.10	0.07	42	43 ⊕	
		Fluoranthene	mg/kg	0.01	0.61	0.47	32	26	
		Naphthalene	mg/kg	0.01	0.07	0.05	46	23	
		Phenanthrene	mg/kg	0.01	0.17	0.18	36	6	
		Fluorene	mg/kg	0.01	<0.05	<0.05	200	0	
		Indeno(1,2,3-cd)pyrene	mg/kg	0.01	0.41	0.33	33	21	
		Surrogates	d14-p-terphenyl (Surrogate)	%	-	115.0	130.0	30	12

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Low Level PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073244.001	LB055478.004	PCB Congener C101	mg/kg	0.004	<0.050	<0.050	200	0
		PCB Congener C118	mg/kg	0.004	<0.050	<0.050	200	0
		PCB Congener C138	mg/kg	0.004	<0.050	<0.050	200	0
		PCB Congener C153	mg/kg	0.004	<0.050	<0.050	200	0
		PCB Congener C180	mg/kg	0.004	<0.050	<0.050	200	0
		PCB Congener C28	mg/kg	0.02	<0.05	<0.05	200	0
		PCB Congener C52	mg/kg	0.01	<0.05	<0.05	200	0
	Surrogates	d14-p-terphenyl (Surrogate)	%	-	115.0	130.0	30	12

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073244.001	LB055578.004	Mercury	mg/kg	0.05	0.29	0.25	49	15

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073190.001	LB055500.011	% Moisture	%	0.5	6.4	6.6	38	3
PE073232.003	LB055500.022	% Moisture	%	0.5	2.81135225372.8163209232		48	0
PE073254.003	LB055500.032	% Moisture	%	0.5	29	29	32	1

Speciated Phenols in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %		
PE073244.001	LB055475.006	Phenol	mg/kg	0.5	<0.5	<0.5	200	0		
		2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	200	0		
		3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	200	0		
		Total Cresol	mg/kg	1.5	<1.5	<1.5	200	0		
		2-chlorophenol	mg/kg	0.5	<0.5	<0.5	200	0		
		2,4-dimethyl phenol	mg/kg	0.5	<0.5	<0.5	200	0		
		2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0		
		2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0		
		2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0		
		2-nitrophenol	mg/kg	0.5	<0.5	<0.5	200	0		
		4-nitrophenol	mg/kg	1	<1	<1	200	0		
		2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	200	0		
		2,3,4,6-tetrachlorophenol	mg/kg	0.5	<0.5	<0.5	200	0		
		Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	200	0		
		2,4-dinitrophenol	mg/kg	2	<2	<2	200	0		
			Surrogates	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	5.9	6.5	30	9
			LB056126.003	2,3,4,6-tetrachlorophenol	mg/kg	1	<1	<1	200	0
			Surrogates	d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.7	30	12

Total Carbon and TOC by LECO Furnace

Method: ME-(AU)-[ENV]AN203

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073232.002	LB055458.010	Total Organic Carbon (TOC)	%w/w	0.02	2.0618	1.9518	31	5

Total Cyanide in soil by Discrete Analyser (Aquamem)

Method: ME-(AU)-[ENV]AN077/AN287

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073244.001	LB055562.004	Total Cyanide	mg/kg	0.1	<0.1	<0.1	200	0

Total Kjeldahl Nitrogen and Total Nitrogen in Soil/Sludges

Method: ME-(AU)-[ENV]AN281

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073244.001	LB055492.004	Total Kjeldahl Nitrogen*	mg/kg	5	3000	3000	30	1

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN320/AN321

Original	Duplicate	Parameter	Units	LOR
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Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Total Recoverable Metals in Soil by ICPOES (continued)

Method: ME-(AU)-[ENV]AN/320AN321

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE072922A.019	LB055578.019	Lead, Pb	mg/kg	1	74	67	31	11
PE073244.001	LB055578.004	Phosphorus, P	mg/kg	10	730	730	31	0
		Aluminium, Al	mg/kg	50	24000	23000	30	5
		Arsenic, As	mg/kg	1	10	11	40	12
		Boron, B	mg/kg	5	36	36	44	1
		Cadmium, Cd	mg/kg	0.1	1.4	1.5	50	5
		Chromium, Cr	mg/kg	0.5	62	60	31	3
		Copper, Cu	mg/kg	0.5	93	90	31	3
		Iron, Fe	mg/kg	50	42000	40000	30	4
		Lead, Pb	mg/kg	1	170	170	31	5
		Magnesium, Mg	mg/kg	10	7700	7500	30	2
		Manganese, Mn	mg/kg	1	250	240	30	1
		Molybdenum, Mo	mg/kg	1	2	2	84	1
		Nickel, Ni	mg/kg	0.5	21	20	32	3
		Selenium, Se	mg/kg	1	<1	<1	200	0
		Tin, Sn	mg/kg	3	4	4	104	10
		Zinc, Zn	mg/kg	2	410	390	30	5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073244.001	LB055475.004	TRH C10-C14	mg/kg	20	31	28	99	10
		TRH C15-C28	mg/kg	45	200	210	52	9
		TRH C29-C36	mg/kg	45	220	250	49	14
		TRH >C10-C16 (F2)	mg/kg	25	100	100	54	3
		TRH >C16-C34 (F3)	mg/kg	90	310	330	58	7
		TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

Ultra Low Level OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073244.001	LB055478.004	Aldrin	mg/kg	0.001	<0.050	<0.050	200	0
		Alpha BHC	mg/kg	0.001	<0.050	<0.050	200	0
		Alpha Chlordane	mg/kg	0.001	<0.050	<0.050	200	0
		Alpha Endosulfan	mg/kg	0.001	<0.050	<0.050	200	0
		Beta BHC	mg/kg	0.001	<0.050	<0.050	200	0
		Beta Endosulfan	mg/kg	0.001	<0.050	<0.050	200	0
		Chlordane (alpha + gamma chlordane)	mg/kg	0.001	<0.10	<0.10	200	0
		Delta BHC	mg/kg	0.001	<0.050	<0.050	200	0
		Dieldrin	mg/kg	0.001	<0.050	<0.050	200	0
		Endosulfan sulphate	mg/kg	0.001	<0.060	<0.060	200	0
		Endrin	mg/kg	0.001	<0.050	<0.050	200	0
		Endrin Aldehyde	mg/kg	0.001	<0.050	<0.050	200	0
		Endrin Ketone	mg/kg	0.001	<0.050	<0.050	200	0
		Gamma Chlordane	mg/kg	0.001	<0.050	<0.050	200	0
		HCB (Hexachlorobenzene)	mg/kg	0.001	<0.050	<0.050	200	0
		Heptachlor	mg/kg	0.001	<0.050	<0.050	200	0
		Heptachlor epoxide	mg/kg	0.001	<0.050	<0.050	200	0
		Lindane	mg/kg	0.001	<0.050	<0.050	200	0
		Methoxychlor	mg/kg	0.001	<0.050	<0.050	200	0
		Mirex	mg/kg	0.001	<0.050	<0.050	200	0
		Oxychlordane	mg/kg	0.001	<0.050	<0.050	200	0
p,p'-DDD	mg/kg	0.001	<0.050	<0.050	200	0		
p,p'-DDE	mg/kg	0.001	<0.060	<0.060	200	0		
p,p'-DDT	mg/kg	0.001	<0.070	<0.070	200	0		
Surrogates	d14-p-terphenyl (Surrogate)	%	-	115.0	130.0	30	12	

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
PE073254.003	LB055940.009	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
		Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0	
		m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0	
		o-xylene	mg/kg	0.1	<0.1	<0.1	200	0	

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
PE073254.003	LB055940.009	Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.3	5.4	50	2
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.8	5.4	50	7
			d8-toluene (Surrogate)	mg/kg	-	4.9	4.8	50	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	4.6	50	10

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %	
PE073254.003	LB055940.009	TRH C6-C9	mg/kg	20	<20	<20	200	0	
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.3	5.4	30	2
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.8	5.4	30	7
			d8-toluene (Surrogate)	mg/kg	-	4.9	4.8	30	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	4.6	30	10
		VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Acid Herbicides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB055513.002	MCCP (Mecoprop)	mg/kg	0.2	2.2	2.5	70 - 130	88
	2,4-D	mg/kg	0.2	2.0	2.5	70 - 130	82
	2,4,5-TP (Silvex, Fenopop)	mg/kg	0.2	2.3	2.5	70 - 130	91
	2,4,5-T	mg/kg	0.2	2.1	2.5	70 - 130	82

Carbamates in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056126.002	Carbamates Carbofuran	mg/kg	0.5	1.1	1.25	70 - 130	91

Low Level Ammonia Nitrogen (soluble) in Soil, sediment or biosolids

Method: ME-(AU)-[ENV]AN002/AN261

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056007.002	Water Soluble Ammonia Nitrogen, NH ₃ as N*	mg/kg	0.025	0.83	0.8	85 - 115	104

Low Level OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB055478.002	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.05	1.2	1.25	70 - 130	94
	Diazinon (Dimpylate)	mg/kg	0.05	1.4	1.25	70 - 130	112
	Parathion-ethyl (Parathion)	mg/kg	0.05	1.5	1.25	70 - 130	119

Low Level PAH (Poly Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB055478.002	Benzo(a)anthracene	mg/kg	0.01	0.13	0.125	50 - 150	102
	Benzo(a)pyrene	mg/kg	0.01	0.14	0.125	50 - 150	115
	Pyrene	mg/kg	0.01	0.13	0.125	50 - 150	105
	Naphthalene	mg/kg	0.01	0.09	0.125	50 - 150	72
	Phenanthrene	mg/kg	0.01	0.12	0.125	50 - 150	94
	Fluorene	mg/kg	0.01	0.11	0.125	50 - 150	89

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB055578.002	Mercury	mg/kg	0.05	0.38	0.333	70 - 130	115
LB055578.021	Mercury	mg/kg	0.05	0.14	0.1125	70 - 130	126

Speciated Phenols in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB055475.002	Phenol	mg/kg	0.5	2.4	2.5	70 - 130	98
	2-methyl phenol (o-cresol)	mg/kg	0.5	2.4	2.5	70 - 130	96
	2,4-dichlorophenol	mg/kg	0.5	2.5	2.5	70 - 130	101
	2,4,6-trichlorophenol	mg/kg	0.5	2.9	2.5	70 - 130	115
	Pentachlorophenol	mg/kg	0.5	3.2	2.5	70 - 130	129
	Surrogates 2,4,6-Tribromophenol (Surrogate)	mg/kg	-	5.9	5	30 - 130	118

Total Carbon and TOC by LECO Furnace

Method: ME-(AU)-[ENV]AN203

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB055458.002	Total Organic Carbon (TOC)	%w/w	0.02	0.90	1	80 - 120	90
LB055458.013	Total Organic Carbon (TOC)	%w/w	0.02	0.93	1	80 - 120	93

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB055562.002	Total Cyanide	mg/kg	0.1	0.2	0.2	80 - 120	101

Total Kjeldahl Nitrogen and Total Nitrogen in Soil/Sludges

Method: ME-(AU)-[ENV]AN281

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB055492.002	Total Kjeldahl Nitrogen*	mg/kg	5	25	25	80 - 120	101

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Total Oxidised Nitrogen NOx (Water Extract) in Soil

Method: ME-(AU)-[ENV]AN258

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056007.002	Water Soluble Nitrate/Nitrite Nitrogen, NOx as N*	mg/kg	1	<1	0.8	85 - 115	100
	Water Soluble Nitrite Nitrogen, NO ₂ as N*	mg/kg	1	<1	0.8	85 - 115	98

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN320AN321

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB055578.002	Phosphorus, P	mg/kg	10	18	16.66	70 - 130	106
	Aluminium, Al	mg/kg	50	<50	16.66	70 - 130	108
	Arsenic, As	mg/kg	1	19	16.66	70 - 130	113
	Boron, B	mg/kg	5	15	16.66	70 - 130	88
	Cadmium, Cd	mg/kg	0.1	19	16.66	70 - 130	114
	Chromium, Cr	mg/kg	0.5	17	16.66	70 - 130	100
	Copper, Cu	mg/kg	0.5	17	16.66	70 - 130	101
	Iron, Fe	mg/kg	50	<50	16.66	70 - 130	105
	Lead, Pb	mg/kg	1	19	16.66	70 - 130	114
	Magnesium, Mg	mg/kg	10	340	333.33	70 - 130	103
	Manganese, Mn	mg/kg	1	16	16.66	70 - 130	99
	Molybdenum, Mo	mg/kg	1	18	16.66	70 - 130	106
	Nickel, Ni	mg/kg	0.5	18	16.66	70 - 130	111
	Selenium, Se	mg/kg	1	19	16.66	70 - 130	113
LB055578.021	Tin, Sn	mg/kg	3	18	16.66	70 - 130	108
	Zinc, Zn	mg/kg	2	16	16.66	70 - 130	98
	Phosphorus, P	mg/kg	10	170	165	70 - 130	105
	Aluminium, Al	mg/kg	50	22000	25500	70 - 130	84
	Arsenic, As	mg/kg	1	26	26.11	70 - 130	101
	Chromium, Cr	mg/kg	0.5	72	78.75	70 - 130	92
	Copper, Cu	mg/kg	0.5	110	122.94	70 - 130	86
	Iron, Fe	mg/kg	50	50000	40000	70 - 130	125
	Lead, Pb	mg/kg	1	240	223.26	70 - 130	106
	Magnesium, Mg	mg/kg	10	2200	2384.95	70 - 130	91
	Manganese, Mn	mg/kg	1	1500	1726.21	70 - 130	87
	Molybdenum, Mo	mg/kg	1	3	2.71	70 - 130	102
	Nickel, Ni	mg/kg	0.5	49	47.81	70 - 130	103
	Zinc, Zn	mg/kg	2	240	270.39	70 - 130	88

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB055475.002	TRH C10-C14	mg/kg	20	21	25	70 - 130	84
	TRH C15-C28	mg/kg	45	<45	25	70 - 130	94
	TRH C29-C36	mg/kg	45	<45	25	70 - 130	93

Ultra Low Level OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB055478.002	Aldrin	mg/kg	0.001	0.93	1.25	50 - 130	74
	Dieldrin	mg/kg	0.001	1.1	1.25	50 - 130	85
	Endrin	mg/kg	0.001	1.3	1.25	50 - 130	101
	Gamma Chlordane	mg/kg	0.001	1.1	1.25	50 - 130	88
	Heptachlor	mg/kg	0.001	0.63	1.25	50 - 130	51
	Lindane	mg/kg	0.001	0.68	1.25	50 - 130	55
	p,p'-DDE	mg/kg	0.001	1.3	1.25	50 - 130	101

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB055940.002	Fumigants	1,2-dichloropropane	mg/kg	0.1	5.4	5	70 - 130	108
		cis-1,3-dichloropropene	mg/kg	0.1	5.0	5	70 - 130	101
		trans-1,3-dichloropropene	mg/kg	0.1	5.3	5	70 - 130	105
	Halogenated	1,1-dichloroethene	mg/kg	0.1	5.4	5	70 - 130	109
		trans-1,2-dichloroethene	mg/kg	0.1	4.9	5	70 - 130	98
	Aliphatics	1,1-dichloroethane	mg/kg	0.1	5.4	5	70 - 130	108
		1,2-dichloroethane	mg/kg	0.1	5.8	5	70 - 130	117
		Carbon tetrachloride	mg/kg	0.1	4.7	5	70 - 130	94
		Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	5.2	5	70 - 130	104
		1,1,2-trichloroethane	mg/kg	0.1	6.0	5	70 - 130	119

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB055940.002	Halogenated	1,1,2,2-tetrachloroethane	mg/kg	0.1	5.5	5	70 - 130	111
	Halogenated	Chlorobenzene	mg/kg	0.1	5.3	5	70 - 130	107
	Aromatics	1,3-dichlorobenzene	mg/kg	0.1	5.1	5	70 - 130	101
		1,4-dichlorobenzene	mg/kg	0.1	5.4	5	70 - 130	109
		1,2-dichlorobenzene	mg/kg	0.1	5.2	5	70 - 130	104
	Monocyclic	Benzene	mg/kg	0.1	5.1	5	70 - 130	102
	Aromatic	Toluene	mg/kg	0.1	5.2	5	70 - 130	103
		Ethylbenzene	mg/kg	0.1	4.9	5	70 - 130	99
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	6.0	5	60 - 130	120
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.3	5	60 - 130	105
		d8-toluene (Surrogate)	mg/kg	-	5.6	5	60 - 130	111
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.6	5	60 - 130	112
	Trihalomethanes	Chloroform	mg/kg	0.1	5.5	5	70 - 130	110
		Bromodichloromethane	mg/kg	0.1	5.6	5	70 - 130	112
		Chlorodibromomethane	mg/kg	0.1	5.7	5	70 - 130	114
		Bromoform	mg/kg	0.1	5.8	5	70 - 130	116

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB055940.002	TRH C6-C9	mg/kg	20	39	30	70 - 130	130	
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.1	5	60 - 130	101
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.6	5	60 - 130	113
		d8-toluene (Surrogate)	mg/kg	-	5.9	5	60 - 130	119
		Bromofluorobenzene (Surrogate)	mg/kg	-	6.0	5	60 - 130	119

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Acid Herbicides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
PE073244.001	LB055513.005	MCPP (Mecoprop)	mg/kg	0.2	2.4	<0.2	2.5	95
		2,4-D	mg/kg	0.2	2.0	<0.2	2.5	80
		2,4,5-TP (Silvex, Fenopop)	mg/kg	0.2	2.4	<0.2	2.5	97
		2,4,5-T	mg/kg	0.2	2.0	<0.2	2.5	81
		Surrogates 2,4-dichlorophenylacetic acid (Surrogate)	mg/kg	-	0.9	0.9	-	89

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
PE073254.001	LB055578.006	Mercury	mg/kg	0.05	0.39	<0.05	0.333	117

Speciated Phenols in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
PE073244.001	LB055475.003	Phenol	mg/kg	0.5	2.5	<0.5	2.5	99
		2-methyl phenol (o-cresol)	mg/kg	0.5	2.5	<0.5	2.5	100
		2,4-dichlorophenol	mg/kg	0.5	2.6	<0.5	2.5	102
		2,4,6-trichlorophenol	mg/kg	0.5	2.9	<0.5	2.5	117
		Pentachlorophenol	mg/kg	0.5	3.0	<0.5	2.5	120
		Surrogates 2,4,6-Tribromophenol (Surrogate)	mg/kg	-	6.1	5.9	-	123

Total Cyanide in soil by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
PE073244.001	LB055562.005	Total Cyanide	mg/kg	0.1	0.9	<0.1	2	44 †

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN/320AN321

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
PE073254.001	LB055578.006	Arsenic, As	mg/kg	1	19	2	16.66	100
		Chromium, Cr	mg/kg	0.5	28	17	16.66	66 @
		Copper, Cu	mg/kg	0.5	15	<0.5	16.66	90
		Lead, Pb	mg/kg	1	17	1	16.66	95
		Nickel, Ni	mg/kg	0.5	17	1.4	16.66	92
		Zinc, Zn	mg/kg	2	15	<2	16.66	88

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%			
PE073244.001	LB055940.004	Fumigants	1,2-dichloropropane	mg/kg	0.1	4.8	<0.1	5	96		
			cis-1,3-dichloropropene	mg/kg	0.1	4.6	<0.1	5	91		
			trans-1,3-dichloropropene	mg/kg	0.1	4.8	<0.1	5	97		
		Aliphatics	Halogenated	1,1-dichloroethene	mg/kg	0.1	4.1	<0.1	5	81	
				trans-1,2-dichloroethene	mg/kg	0.1	3.7	<0.1	5	75	
			Aromatics	1,1-dichloroethane	mg/kg	0.1	4.3	<0.1	5	87	
				1,2-dichloroethane	mg/kg	0.1	5.3	<0.1	5	106	
				Carbon tetrachloride	mg/kg	0.1	3.8	<0.1	5	76	
				Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	4.4	<0.1	5	88	
				1,1,2-trichloroethane	mg/kg	0.1	5.5	<0.1	5	110	
				1,1,2,2-tetrachloroethane	mg/kg	0.1	5.3	<0.1	5	105	
				Halogenated	Chlorobenzene	mg/kg	0.1	4.9	<0.1	5	97
					Aromatics	1,3-dichlorobenzene	mg/kg	0.1	4.7	<0.1	5
		1,4-dichlorobenzene	mg/kg			0.1	5.1	<0.1	5	102	
		1,2-dichlorobenzene	mg/kg	0.1		5.0	<0.1	5	100		
		Monocyclic Aromatic	Benzene	mg/kg	0.1	4.3	<0.1	5	87		
			Toluene	mg/kg	0.1	4.5	<0.1	5	90		
		Surrogates	Trihalomethanes	Ethylbenzene	mg/kg	0.1	4.4	<0.1	5	87	
				Dibromofluoromethane (Surrogate)	mg/kg	-	6.0	5.2	5	120	
				d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.3	5.5	5	105	
				d8-toluene (Surrogate)	mg/kg	-	5.6	4.8	5	111	
				Bromofluorobenzene (Surrogate)	mg/kg	-	5.6	4.8	5	112	
		Chloroform	mg/kg	0.1	4.8	<0.1	5	96			
		Bromodichloromethane	mg/kg	0.1	5.1	<0.1	5	102			

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
PE073244.001	LB055940.004	Trihalomethanes	Chlorodibromomethane	mg/kg	0.1	5.3	<0.1	5	106
			Bromoform	mg/kg	0.1	5.4	<0.1	5	109

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%	
PE073244.001	LB055940.005	TRH C6-C9	mg/kg	20	32	<20	30	106	
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.3	5.2	5	106
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.8	5.5	5	115
			d8-toluene (Surrogate)	mg/kg	-	5.3	4.8	5	105
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.2	4.8	5	103

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Acid Herbicides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073244.001	LB055513.006	MCPP (Mecoprop)	mg/kg	0.2	2.4	2.2	39	9
		2,4-D	mg/kg	0.2	2.0	2.8	38	34
		2,4,5-TP (Silvex, Fenopop)	mg/kg	0.2	2.4	3.2	37	28
		2,4,5-T	mg/kg	0.2	2.0	2.7	38	29
		Surrogates	2,4-dichlorophenylacetic acid (Surrogate)	mg/kg	-	0.9	0.8	30

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073254.001	LB055578.007	Mercury	mg/kg	0.05	0.39	0.37	43	6

Speciated Phenols in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073244.001	LB055475.004	Phenol	mg/kg	0.5	2.5	2.4	50	3
		2-methyl phenol (o-cresol)	mg/kg	0.5	2.5	2.4	51	6
		2,4-dichlorophenol	mg/kg	0.5	2.6	2.4	50	5
		2,4,6-trichlorophenol	mg/kg	0.5	2.9	2.8	47	4
		Pentachlorophenol	mg/kg	0.5	3.0	3.0	47	2
		Surrogates	2,4,6-Tribromophenol (Surrogate)	mg/kg	-	6.1	6.3	30

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN320AN321

QC Sample	Sample Number	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073254.001	LB055578.007	Arsenic, As	mg/kg	1	19	20	35	8
		Chromium, Cr	mg/kg	0.5	28	30	32	19
		Copper, Cu	mg/kg	0.5	15	16	33	6
		Lead, Pb	mg/kg	1	17	18	36	6
		Nickel, Ni	mg/kg	0.5	17	18	33	5
		Zinc, Zn	mg/kg	2	15	16	43	6

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

QC Sample	Sample Number	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %		
PE073244.001	LB055940.005	Fumigants	1,2-dichloropropane	mg/kg	0.1	4.8	4.9	32	1	
			cis-1,3-dichloropropene	mg/kg	0.1	4.6	4.7	32	2	
			trans-1,3-dichloropropene	mg/kg	0.1	4.8	4.9	32	1	
		Halogenated	1,1-dichloroethene	mg/kg	0.1	4.1	3.8	33	8	
			Aliphatics	trans-1,2-dichloroethene	mg/kg	0.1	3.7	3.8	33	1
		1,1-dichloroethane		mg/kg	0.1	4.3	4.4	32	1	
		1,2-dichloroethane		mg/kg	0.1	5.3	5.4	32	1	
		Carbon tetrachloride		mg/kg	0.1	3.8	4.0	33	4	
		Trichloroethene (Trichloroethylene -TCE)		mg/kg	0.1	4.4	4.6	32	3	
		1,1,2-trichloroethane		mg/kg	0.1	5.5	5.5	32	0	
		1,1,2,2-tetrachloroethane		mg/kg	0.1	5.3	5.1	32	2	
		Halogenated		Chlorobenzene	mg/kg	0.1	4.9	4.9	32	1
			Aromatics	1,3-dichlorobenzene	mg/kg	0.1	4.7	4.6	32	1
		1,4-dichlorobenzene		mg/kg	0.1	5.1	5.1	32	1	
		1,2-dichlorobenzene		mg/kg	0.1	5.0	5.0	32	1	
		Monocyclic	Aromatic	Benzene	mg/kg	0.1	4.3	4.4	32	1
				Toluene	mg/kg	0.1	4.5	4.6	32	2
		Surrogates		Ethylbenzene	mg/kg	0.1	4.4	4.5	32	2
				Dibromofluoromethane (Surrogate)	mg/kg	-	6.0	5.3	50	12
				d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.3	5.8	50	9
				d8-toluene (Surrogate)	mg/kg	-	5.6	5.3	50	5
				Bromofluorobenzene (Surrogate)	mg/kg	-	5.6	5.2	50	8
		Trihalomethanes		Chloroform	mg/kg	0.1	4.8	4.9	32	1
				Bromodichloromethane	mg/kg	0.1	5.1	5.1	32	1
				Chlorodibromomethane	mg/kg	0.1	5.3	5.3	32	0
				Bromoform	mg/kg	0.1	5.4	5.4	32	1

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

QC Sample	Sample Number	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073244.001	LB055940.004	TRH C6-C9	mg/kg	20	32	36	89	13
		Surrogates						
		Dibromofluoromethane (Surrogate)	mg/kg	-	5.3	6.0	30	12
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.8	5.3	30	9
		d8-toluene (Surrogate)	mg/kg	-	5.3	5.6	30	5
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.2	5.6	30	8

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here:
<http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-11.pdf>

- * Non-accredited analysis.
- Sample not analysed for this analyte.
- ^ Analysis performed by external laboratory.

- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.

- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Low surrogate recovery due to the sample emulsifying during extraction.
- † Refer to Analytical Report comments for further information.

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CLIENT DETAILS

LABORATORY DETAILS

Contact Alan Foley
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 Address PO Box 465
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Telephone (08) 9373 3500
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 Email au.environmental.perth@sgs.com

Project **I12147 Burswood Stadium**
 Order Number **I12147**
 Samples 1

SGS Reference PE073244 R0
 Report Number 0000052576
 Date Reported 27/12/2012 09:40:14
 Date Received 12 Dec 2012

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(898/20210).

Fibre Identification performed by Approved Identifier Karin White.

TRH matrix spikes could not be reported for sample "TZCC02" due to the sample being heavily impacted with hydrocarbons.

MS for Total Cyanide failed acceptance criteria due to interference from the matrix. Other QC's passed.

SVOC - LOR's were raised, matrix spikes and some surrogates could not be reported due to sample matrix interferences and dilution.

SIGNATORIES




Gary Walton
Organic Chemist



Hue Thanh Ly
Metals Supervisor



Karin White
Hygiene Signatory



Leanne Orsmond
Inorganics Coordinator



Lee-Anne Pedrick
Senior Chemist



Michael McKay
Inorganic Team Leader - Waters

RESULTS

Fibre Identification in soil

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w
PE073244.001	TZZC02	Soil	soil, 135g	11 Dec 2012	No Asbestos Found	

METHOD

METHODOLOGY SUMMARY

- AN602 Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
- AN602 AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	Not Accredited
Amphiboles	-	Amosite and/or Crocidolite			

Insofar as is technically feasible, this report is consistent with the analytical reporting recommendations in the Western Australia Department of Health Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia-May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarized light microscopy, including dispersion staining.

Where reported: 'No Asbestos Found': No Asbestos Found by polarized light microscopy, including dispersion staining.

Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarized light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : <http://www.sgs.com.au/pv.sgsv3/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

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SAMPLE RECEIPT ADVICE

PE073244

CLIENT DETAILS

Contact Alan Foley
Client RPS Environment and Planning Pty Ltd
Address PO Box 465
SUBIACO WA 6904

Telephone 08 9211 1111
Facsimile 08 9211 1122
Email alan.foley@rpsgroup.com.au

Project **I12147 Burswood Stadium**
Order Number **I12147**
Samples 1

LABORATORY DETAILS

Manager Ros Ma
Laboratory SGS Newburn Environmental
Address 10 Reid Rd
Newburn WA 6105

Telephone (08) 9373 3500
Facsimile (08) 9373 3556
Email au.environmental.perth@sgs.com

Samples Received Wed 12/12/2012
Report Due Fri 21/12/2012
SGS Reference **PE073244**

SUBMISSION DETAILS

This is to confirm that 1 sample was received on Wednesday 12/12/2012. Results are expected to be ready by Friday 21/12/2012. Please quote SGS reference PE073244 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	1 Soil	Type of documentation received	COC
Date documentation received	12/12/2012	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	20°C
Sample container provider	ALS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	1

Samples will be held for one month for water samples and two months for soil samples from date of report, unless otherwise instructed.

COMMENTS

Herbicides on the COC analysed as Acid Herbicides. TPH analysed as TRH. Phenols analysed as Speciated Phenols. CT Sampling date not provided.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

CLIENT DETAILS

Client

RPS Environment and Planning Pty Ltd

Project

I12147 Burswood Stadium

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Low Level Ammonia Nitrogen (soluble) in Soil,	Mercury in Soil	Moisture Content	Total Carbon and TOC by LECO Furnace	Total Cyanide in soil by Discrete Analyser	Total Kjeldahl Nitrogen and Total Nitrogen in	Total Oxidised Nitrogen NOx (Water Extract) in Soil	Total Recoverable Metals in Soil by ICPOES	Water Soluble ortho Phosphorus in Soil
001	TZZC02	1	1	1	1	1	3	2	3	16	1

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document. The numbers shown in the table indicate the number of results requested in each package. Please indicate as soon as possible should your request differ from these details. Testing as per this table shall commence immediately unless the client intervenes with a correction.



SAMPLE RECEIPT ADVICE

PE073244

CLIENT DETAILS

Client RPS Environment and Planning Pty Ltd Project I12147 Burswood Stadium

SUMMARY OF ANALYSIS

No.	Sample ID	Acid Herbicides in Soil	Carbamates in Soil	Low Level OP Pesticides in Soil	Low Level PAH (Poly Aromatic Hydrocarbons) in	Low Level PCBs in Soil	Speciated Phenols in Soil	TRH (Total Recoverable Hydrocarbons) in Soil	Ultra Low Level OC Pesticides in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	TZZC02	21	3	12	20	8	18	6	34	75	7

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CERTIFICATE OF ANALYSIS

COA No:	PER-50478553-0
Supersedes:	None
COA Date:	23/01/2013
Page 1 of 4	

TO:

 Scott James
 ALS Environmental
 10 Hod Way
 Malaga, WA 6090

Received From:	Malaga, WA
Received Date:	14/12/2012
P.O.#:	314766
Location of Test: (except where noted) Perth, WA	

Analytical Results

Desc. 1:	Work Order No: EP1210303	Sample Number:	451902965		
Desc. 2:	Sample No:EP1210303-001	Condition Rec'd:	NORMAL		
Desc. 3:	Sample ID:T01C01	Temp Rec'd (°C):	8.0		
Desc. 4:	Sample Date: 10/12/12	Date Started:	14/12/2012		
Analyte	Result	Units	Method Reference	Result Date	Loc.
Enterococci Count	<10	CFU/g	M61	23/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	16/12/2012	

Desc. 1:	Work Order No: EP1210303	Sample Number:	451902967		
Desc. 2:	Sample No:EP1210303-002	Condition Rec'd:	NORMAL		
Desc. 3:	Sample ID:T02C01	Temp Rec'd (°C):	8.0		
Desc. 4:	Sample Date: 10/12/12	Date Started:	14/12/2012		
Analyte	Result	Units	Method Reference	Result Date	Loc.
Enterococci Count	<10	CFU/g	M61	23/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	16/12/2012	

Desc. 1:	Work Order No: EP1210303	Sample Number:	451902968		
Desc. 2:	Sample No:EP1210303-003	Condition Rec'd:	NORMAL		
Desc. 3:	Sample ID:T03C01	Temp Rec'd (°C):	8.0		
Desc. 4:	Sample Date: 10/12/12	Date Started:	14/12/2012		
Analyte	Result	Units	Method Reference	Result Date	Loc.
Enterococci Count	<10	CFU/g	M61	13/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	16/12/2012	

Desc. 1:	Work Order No: EP1210303	Sample Number:	451902970		
Desc. 2:	Sample No:EP1210303-004	Condition Rec'd:	NORMAL		
Desc. 3:	Sample ID:T04C01	Temp Rec'd (°C):	8.0		
Desc. 4:	Sample Date: 10/12/12	Date Started:	14/12/2012		
Analyte	Result	Units	Method Reference	Result Date	Loc.
Enterococci Count	<10	CFU/g	M61	13/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	16/12/2012	

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CERTIFICATE OF ANALYSIS

COA No:	PER-50478553-0
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COA Date:	23/01/2013
Page 2 of 4	

TO:

 Scott James
 ALS Environmental
 10 Hod Way
 Malaga, WA 6090

Received From:	Malaga, WA
Received Date:	14/12/2012
P.O.#:	314766
Location of Test: (except where noted) Perth, WA	

Analytical Results

Desc. 1:	Work Order No: EP1210303	Sample Number:	451902973
Desc. 2:	Sample No:EP1210303-005	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID:T05C01	Temp Rec'd (°C):	8.0
Desc. 4:	Sample Date: 10/12/12	Date Started:	14/12/2012
Analyte	Result Units	Method Reference	Result Date Loc.
Enterococci Count	<10 CFU/g	M61	13/01/2013
Thermotolerant Coliforms	<3 MPN/g	M8.1 - 3MPN	16/12/2012

Desc. 1:	Work Order No: EP1210303	Sample Number:	451902975
Desc. 2:	Sample No:EP1210303-006	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID:T06C01	Temp Rec'd (°C):	8.0
Desc. 4:	Sample Date: 10/12/12	Date Started:	14/12/2012
Analyte	Result Units	Method Reference	Result Date Loc.
Enterococci Count	<10 CFU/g	M61	13/01/2013
Thermotolerant Coliforms	<3 MPN/g	M8.1 - 3MPN	16/12/2012

Desc. 1:	Work Order No: EP1210303	Sample Number:	451902976
Desc. 2:	Sample No:EP1210303-007	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID:T07C01	Temp Rec'd (°C):	8.0
Desc. 4:	Sample Date: 10/12/12	Date Started:	14/12/2012
Analyte	Result Units	Method Reference	Result Date Loc.
Enterococci Count	<10 CFU/g	M61	23/01/2013
Thermotolerant Coliforms	<3 MPN/g	M8.1 - 3MPN	16/12/2012

Desc. 1:	Work Order No: EP1210303	Sample Number:	451902977
Desc. 2:	Sample No:EP1210303-008	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID:T08C01	Temp Rec'd (°C):	8.0
Desc. 4:	Sample Date: 10/12/12	Date Started:	14/12/2012
Analyte	Result Units	Method Reference	Result Date Loc.
Enterococci Count	<10 CFU/g	M61	13/01/2013
Thermotolerant Coliforms	<3 MPN/g	M8.1 - 3MPN	16/12/2012

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Page 3 of 4	

TO:

 Scott James
 ALS Environmental
 10 Hod Way
 Malaga, WA 6090

Received From:	Malaga, WA
Received Date:	14/12/2012
P.O.#:	314766
Location of Test: (except where noted) Perth, WA	

Analytical Results

Desc. 1:	Work Order No: EP1210303	Sample Number:	451902980
Desc. 2:	Sample No:EP1210303-009	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID:T09C01	Temp Rec'd (°C):	8.0
Desc. 4:	Sample Date: 10/12/12	Date Started:	14/12/2012
Analyte	Result Units	Method Reference	Result Date Loc.
Enterococci Count	<10 CFU/g	M61	13/01/2013
Thermotolerant Coliforms	<3 MPN/g	M8.1 - 3MPN	16/12/2012

Desc. 1:	Work Order No: EP1210303	Sample Number:	451902981
Desc. 2:	Sample No:EP1210303-010	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID:T11C01	Temp Rec'd (°C):	8.0
Desc. 4:	Sample Date: 10/12/12	Date Started:	14/12/2012
Analyte	Result Units	Method Reference	Result Date Loc.
Enterococci Count	<10 CFU/g	M61	13/01/2013
Thermotolerant Coliforms	<3 MPN/g	M8.1 - 3MPN	16/12/2012

Desc. 1:	Work Order No: EP1210303	Sample Number:	451902982
Desc. 2:	Sample No:EP1210303-011	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID:T13C01	Temp Rec'd (°C):	8.0
Desc. 4:	Sample Date: 10/12/12	Date Started:	14/12/2012
Analyte	Result Units	Method Reference	Result Date Loc.
Enterococci Count	<10 CFU/g	M61	23/01/2013
Thermotolerant Coliforms	<3 MPN/g	M8.1 - 3MPN	16/12/2012

Desc. 1:	Work Order No: EP1210303	Sample Number:	451902983
Desc. 2:	Sample No:EP1210303-012	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID:T21C01	Temp Rec'd (°C):	8.0
Desc. 4:	Sample Date: 10/12/12	Date Started:	14/12/2012
Analyte	Result Units	Method Reference	Result Date Loc.
Enterococci Count	<10 CFU/g	M61	13/01/2013
Thermotolerant Coliforms	<3 MPN/g	M8.1 - 3MPN	16/12/2012

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COA Date:	23/01/2013
Page 4 of 4	

TO:

Scott James
ALS Environmental
10 Hod Way
Malaga, WA 6090

Received From:	Malaga, WA
Received Date:	14/12/2012
P.O.#:	314766
Location of Test: (except where noted) Perth, WA	

Analytical Results



JAMES MILLS
LABORATORY DIRECTOR

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CERTIFICATE OF ANALYSIS

COA No:	PER-50478554-0
Supersedes:	None
COA Date:	23/01/2013
Page 1 of 6	

TO:

 Scott James
 ALS Environmental
 10 Hod Way
 Malaga, WA 6090

Received From:	Malaga, WA
Received Date:	18/12/2012
P.O.#:	314778
Location of Test: (except where noted) Perth, WA	

Analytical Results

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909366
Desc. 2:	Sample No: EP1210363-001	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T10C01	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Enterococci Count	<10	CFU/g	M61	13/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	13/01/2013	

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909367
Desc. 2:	Sample No: EP1210363-002	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T12C01	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Enterococci Count	<10	CFU/g	M61	13/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	13/01/2013	

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909368
Desc. 2:	Sample No: EP1210363-003	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T14C01	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Enterococci Count	<10	CFU/g	M61	13/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	13/01/2013	

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909369
Desc. 2:	Sample No: EP1210363-004	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T14C02	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Enterococci Count	<10	CFU/g	M61	13/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	13/01/2013	

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CERTIFICATE OF ANALYSIS

COA No:	PER-50478554-0
Supersedes:	None
COA Date:	23/01/2013
Page 2 of 6	

TO:

 Scott James
 ALS Environmental
 10 Hod Way
 Malaga, WA 6090

Received From:	Malaga, WA
Received Date:	18/12/2012
P.O.#:	314778
Location of Test: (except where noted) Perth, WA	

Analytical Results

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909370
Desc. 2:	Sample No: EP1210363-005	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T14C03	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013
Analyte	Result Units	Method Reference	Result Date Loc.
Enterococci Count	<10 CFU/g	M61	13/01/2013
Thermotolerant Coliforms	<3 MPN/g	M8.1 - 3MPN	13/01/2013

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909371
Desc. 2:	Sample No: EP1210363-006	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T15C01	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013
Analyte	Result Units	Method Reference	Result Date Loc.
Enterococci Count	<10 CFU/g	M61	13/01/2013
Thermotolerant Coliforms	<3 MPN/g	M8.1 - 3MPN	13/01/2013

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909372
Desc. 2:	Sample No: EP1210363-007	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T15C02	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013
Analyte	Result Units	Method Reference	Result Date Loc.
Enterococci Count	<10 CFU/g	M61	13/01/2013
Thermotolerant Coliforms	<3 MPN/g	M8.1 - 3MPN	13/01/2013

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909373
Desc. 2:	Sample No: EP1210363-008	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T16C01	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013
Analyte	Result Units	Method Reference	Result Date Loc.
Enterococci Count	<10 CFU/g	M61	13/01/2013
Thermotolerant Coliforms	<3 MPN/g	M8.1 - 3MPN	13/01/2013

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COA No:	PER-50478554-0
Supersedes:	None
COA Date:	23/01/2013
Page 3 of 6	

TO:

 Scott James
 ALS Environmental
 10 Hod Way
 Malaga, WA 6090

Received From:	Malaga, WA
Received Date:	18/12/2012
P.O.#:	314778
Location of Test: (except where noted) Perth, WA	

Analytical Results

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909374
Desc. 2:	Sample No: EP1210363-009	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T17C01	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Enterococci Count	<10	CFU/g	M61	13/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	13/01/2013	

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909375
Desc. 2:	Sample No: EP1210363-010	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T17C02	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Enterococci Count	<10	CFU/g	M61	13/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	13/01/2013	

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909378
Desc. 2:	Sample No: EP1210363-011	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T18C01	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Enterococci Count	<10	CFU/g	M61	13/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	13/01/2013	

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909380
Desc. 2:	Sample No: EP1210363-012	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T18C02	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Enterococci Count	<10	CFU/g	M61	23/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	13/01/2013	

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Analytical Results

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909382
Desc. 2:	Sample No: EP1210363-013	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T18C03	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Enterococci Count	<10	CFU/g	M61	13/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	13/01/2013	

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909384
Desc. 2:	Sample No: EP1210363-014	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T19C01	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Enterococci Count	<10	CFU/g	M61	23/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	13/01/2013	

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909385
Desc. 2:	Sample No: EP1210363-015	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T19C02	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Enterococci Count	<10	CFU/g	M61	13/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	13/01/2013	

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909386
Desc. 2:	Sample No: EP1210363-016	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T20C01	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Enterococci Count	<10	CFU/g	M61	13/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	13/01/2013	

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P.O.#:	314778
Location of Test: (except where noted) Perth, WA	

Analytical Results

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909387
Desc. 2:	Sample No: EP1210363-017	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T20C02	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013
Analyte	Result Units	Method Reference	Result Date Loc.
Enterococci Count	<10 CFU/g	M61	13/01/2013
Thermotolerant Coliforms	<3 MPN/g	M8.1 - 3MPN	13/01/2013

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909389
Desc. 2:	Sample No: EP1210363-018	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T22C01	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013
Analyte	Result Units	Method Reference	Result Date Loc.
Enterococci Count	<10 CFU/g	M61	13/01/2013
Thermotolerant Coliforms	<3 MPN/g	M8.1 - 3MPN	13/01/2013

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909390
Desc. 2:	Sample No: EP1210363-019	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T23C01	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013
Analyte	Result Units	Method Reference	Result Date Loc.
Enterococci Count	<10 CFU/g	M61	23/01/2013
Thermotolerant Coliforms	<3 MPN/g	M8.1 - 3MPN	13/01/2013

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909393
Desc. 2:	Sample No: EP1210363-020	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T24C01	Temp Rec'd (°C):	4
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013
Analyte	Result Units	Method Reference	Result Date Loc.
Enterococci Count	<10 CFU/g	M61	13/01/2013
Thermotolerant Coliforms	<3 MPN/g	M8.1 - 3MPN	13/01/2013

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Received From:	Malaga, WA
Received Date:	18/12/2012
P.O.#:	314778
Location of Test: (except where noted) Perth, WA	

Analytical Results

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909395		
Desc. 2:	Sample No: EP1210363-021	Condition Rec'd:	NORMAL		
Desc. 3:	Sample ID: TZC01	Temp Rec'd (°C):	4		
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013		
Analyte	Result	Units	Method Reference	Result Date	Loc.
Enterococci Count	<10	CFU/g	M61	13/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	13/01/2013	

Desc. 1:	Work Order No: EP1210363	Sample Number:	451909396		
Desc. 2:	Sample No: EP1210363-022	Condition Rec'd:	NORMAL		
Desc. 3:	Sample ID: TZC02	Temp Rec'd (°C):	4		
Desc. 4:	Sample Date: 11/12/12	Date Started:	11/01/2013		
Analyte	Result	Units	Method Reference	Result Date	Loc.
Enterococci Count	<10	CFU/g	M61	13/01/2013	
Thermotolerant Coliforms	<3	MPN/g	M8.1 - 3MPN	13/01/2013	



**JAMES MILLS
LABORATORY DIRECTOR**

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APPENDIX 7

Quality Assurance and Quality Control Evaluation

APPENDIX 7: Quality Control and Assurance Data Evaluation

1.1 Field Quality Control and Assurance

1.1.1 Decontamination Procedures

All non-disposable¹ sample collection equipment was subjected to rigorous decontamination procedures to prevent cross-contamination of samples. All non-disposable sampling equipment was subjected to the following decontamination procedures to prevent cross-contamination:

- (a) Remove adhered sediments using scrapers, brushes and sponges.
- (b) Wash thoroughly in an oxygen-based phosphate-free detergent solution.
- (c) Inspect equipment for any residues.
- (d) Repeat (b) and (c) until no evidence of residues.
- (e) Rinse thoroughly with de-ionised water.

1.1.2 Sample Quality Control

Quality assurance and quality control procedures were implemented as advocated in the abovementioned guideline documents. Quality control samples were collected during the program as follows:

- Field blind replicates (duplicate and triplicate samples). Duplicate samples were collected at a rate of one per 20 primary samples submitted for analysis. Triplicate samples were also collected at a rate of one per 20 primary samples submitted for analysis at a different laboratory.
- Field rinsate samples (daily final rinse water collected following the decontamination of sampling equipment after sampling) to check for any cross-contamination from the sampling equipment.
- Field/Trip blanks (daily samples of de-ionised water used for rinsing which are placed in the esky during field work and transport to the laboratory) to check for any atmospheric cross-contamination during sampling or in transit.

1.1.3 Sediment Collection

The sediment sampling field log describes the sediment profile at each location and includes the following:

- sampling location and job reference number

¹ Disposable sampling equipment will be discarded and replaced between each sampling location.

- sample identification
- date
- sampling method
- initials of sampler
- site observations including weather conditions
- total sampling depth and sampling intervals
- presence of any visual contaminants and/or odours in the sample
- GPS coordinates
- reference to any QA/QC sampling
- reference to any photographs
- sample storage and preservation
- reference to any extra chemical analysis required as a result of contaminants identified or suspected during sampling.

1.1.4 Pore Water Collection

The pore water sampling field log describes sampling details at each location and includes the following:

- sampling location and job reference number
- sample identification
- date
- initials of sampler
- site observations including weather conditions
- pore water stabilisation data
- final stability data
- purge rate and sampling rate
- filtration used
- sample recovery method
- recovery depth
- presence of any visual contaminants and/or odours in the sample
- GPS coordinates and surveyed relative levels
- reference to any QA/QC sampling
- reference to any photographs
- sample storage and preservation
- reference to any extra chemical analysis required as a result of contaminants identified or suspected during sampling.

1.1.5 Surface Water Collection

The surface water sampling field log describes sampling details at each location and includes the following:

- sampling location and job reference number
- sample identification
- date

- initials of sampler
- site observations including weather conditions
- physico-chemical data
- purge rate and sampling rate
- filtration used
- sample recovery method
- recovery depth
- presence of any visual contaminants and/or odours in the sample
- GPS coordinates and surveyed relative levels
- reference to any QA/QC sampling
- reference to any photographs
- sample storage and preservation
- reference to any extra chemical analysis required as a result of contaminants identified or suspected during sampling.

1.1.6 Sample Preservation

Disposable nitrile gloves were worn when handling and collecting the samples. Clean, new gloves were worn at each sample location. Samples were stored in containers appropriate for the selected analytes and suitably prepared by the laboratory. Sediment was packed into the containers with zero headspace to reduce the potential for volatilisation or oxidation of contaminants of concern. All containers were tightly sealed. Glass jars contained teflon-lined lids to prevent dissolution of the plastics and therefore possible contamination of samples.

Surface water samples were due to be sampled within the field however an error occurred during sampling and this was not completed. As such the unfiltered (total) samples present a worst case scenario of metals and nutrients within the water column. There is potentially a volume of very fine sediment ($< 2 \mu\text{m}$) has been collected during sampling, which represents the material that is easily suspended during natural flows of the river. Other larger sediment material is not anticipated to be easily suspended during natural flows and therefore not anticipated to be present within the top 0.2 m of the water column given the bathymetry of the river and sampling locations. Samples were acidified at the laboratory, prior to analysis, and as such reflective of total concentrations.

1.1.7 Sample Transportation and Storage

All samples were kept on ice in a chilled container until delivered to a NATA accredited laboratory for analysis with an accompanying chain of custody (CoC). Sample receipt notifications (SRNs) from the laboratory indicate the samples arrived chilled with ice still present in the eskies and that all samples were received within holding times and in appropriately pre-treated and preserved containers. Where no temperature was recorded, the signing of the CoC by the laboratory is supportive to the fact that the samples were received in a chilled and suitable state.

1.1.8 Waste Disposal

Due to the sampling methodology, i.e. push core, the sampling environment, i.e. estuarine, and the volume of sample required for each sample, in the majority of cases no excess sample was generated during sampling. The majority of locations requiring additional sediment recovery attempts to ensure sufficient sample for laboratory analysis. As such almost no excess sediment was collected during the sampling, with any excess returned to the river at the location of collection, as no visual or olfactory evidence of contamination was identified.

1.1.9 Calibration Records

All field equipment was calibrated at the beginning of each sampling day in accordance with the instrument's manual. A record of calibration for each piece of field equipment was recorded using a calibration form.

1.2 Laboratory Quality Control and Assurance

1.2.1 Analytical Methods and Accreditation

RPS requires that laboratories have a QA/QC program that is endorsed by NATA. The laboratory should be able to demonstrate (NEPM 1999):

- method proficiency within the laboratory
- conformance to the performance characteristics expected of the method
- confidence in the results produced.

And achieve the following criteria:

- All spike recovery rates are to be above 85% in general.
- RPDs between original and duplicate samples are to be less than 35%.
- Contaminant concentrations in blanks are to be at or below the nominated limits of detection.

Calculation of the RPD value is provided in the following equation:

$$RPD = \frac{(C_o - C_s)}{\left(\frac{C_o + C_s}{2}\right)} \times 100$$

where: C_o = concentration of the original sample
 C_s = concentration of the duplicate sample

The RPD calculation was used to normalise each pair of results to allow for better QA/QC data interpretation. For those RPD values which exceed a generally acceptable 30–50% (Standards Australia 2005) data correlation is considered poor, however, consideration needs to be given to sample homogeneity and the concentrations detected.

The practical quantification limit (PQL) should be considered when interpreting QA/QC results. The PQL is the minimum concentration of an analyte that can be accurately and precisely quantified. The PQL is analogous to the estimated quantitation limit (EQL) which is defined as the lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. The limit of reporting (LOR) often quoted by laboratories is also synonymous with the PQL and EQL.

The PQL, EQL and LOR are in contrast to the lower limit of detection (LLD) which is the concentration of an analyte which, when the sample is processed through the complete method, produces a response with a 95% probability that it is different from the blank. The LLD is analogous to the method detection limit (MDL) which is defined as the minimum concentration of an analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. The PQL, EQL or LOR is generally 5–10 × the LLD or MDL, depending on the analyte and detection method used. The PQL is 5 × LLD when the LLD is determined according to APHA guidelines (1995).

It is acknowledged that with any testing there is a level of measurement uncertainty (MU) and that NATA and the *National Measurement Act (1960)* requires that all test results should be expressed with an MU statement at the 95% confidence limit. MU needs to be considered along with the PQL when interpreting results. Reporting of results at the LLD or MDL is acceptable in so far that the MU is accounted for.

The laboratory is normally required to meet these criteria before reporting results to RPS. In some circumstances if the RPD % or the spike recovery rate exceed the relevant threshold, but the measured concentrations are close to the detection limit and well below guideline concentrations, the laboratory may not be required to re-analyse the sample. The highest value is always used for assessment purposes.

The samples were analysed by Australian Laboratory Services (ALS) and triplicate samples will be analysed by SGS, both laboratories are registered by the NATA and use NATA accredited methods. The NATA accreditations for the primary and triplicate laboratories are presented in the SAP (RPS 2012).

1.2.2 Laboratory Procedures

All methods were to be undertaken in the appropriate holding times and undertaken using NATA accredited methods. All LOR were lower than the assessment guidelines where possible.

1.2.3 Analytical Data Validation

Analytical data validation is the process of assessing whether data complies with the method requirements and project specifications. The objective of this process is to ensure that data of known and pre-determined quality are reported, and to identify if the data can be used to fulfil the overall project objectives.

In summary, the process involves the checking of analytical procedure and an assessment of the accuracy of analytical data from a range of standard QA/QC measures undertaken by both the sampler and the analytical laboratory.

The results of the QA/QC measures undertaken that were subsequently checked/assessed include the following:

- preservation and storage of samples upon collection and during transport to the laboratory
- holding times
- use of appropriate analytical procedures
- required limits of reporting, to ensure all LOR were below the adopted guidelines
- frequency of conducting quality control measurements
- laboratory blanks
- field duplicates (relative percentage difference (RPD))
- internal laboratory duplicates (relative percentage difference (RPD))
- matrix spike/matrix spike duplicates (MS/MSDs) (spike percentage recoveries (%R))
- surrogates (or System Monitoring Compounds) (spike percentage recoveries (%R))
- external check standards
- occurrence of apparently unusual or anomalous results, e.g. laboratory results that appear to be inconsistent with field observations or measurements.

1.3 Field QA/QC Evaluation

1.3.1 Sediment Duplicates

In accordance with the quality assurance and quality control requirements two field duplicates were collected, the results of which are presented in Table 7-1 to 7-7. The duplicate samples of TZC01 were collected from sample location T14, whilst those from TZC02 were collected from location T17.

A total of 323 of the 355 analyte tests (91%) performed on the field duplicate sediment samples had a Relative Percentage Difference (RPD) within 50% of the original samples indicating the sampling and analysis procedures applied by RPS and the laboratory were generally reproducible.

A summary of the analytes that were outside of the adopted criteria is provided in Table 7-A below based on a PQL/LOR ratio of <5.

Table 7-A: Sediment Duplicate Results Summary

(sample) = Insignificant = (sample) < 5 x PQL				
(sample) = Significant = (sample) > 5 x PQL				
Sample ID	Analyte	PQL (LOR)	Significance (5 x PQL)	Concentration mg/kg
Field Duplicate (RPD>50%)				
T14C02	Cyanide	1	5	1
TZC01		1	5	2
T14C02	Total Organic Carbon	0.02	0.1	2.51
TZC01		0.02	0.1	1.14
T14C02	TPH C10-C14	3	12	9
TZC01		3	12	4
T14C02	TPH C15-C28	3	12	284
TZC01		3	12	169
T14C02	2-methyl-naphthalene	0.004	0.02	0.291
TZC01		0.004	0.02	0.153
T14C02	Anthracene	0.004	0.02	0.501
TZC01		0.004	0.02	0.263
T14C02	Benz(a)pyrene	0.004	0.02	2.47
TZC01		0.004	0.02	1.4
T14C02	Benz(b)fluoranthene	0.004	0.02	2.07
TZC01		0.004	0.02	1.05
T14C02	Benz(e)pyrene	0.004	0.02	1.71
TZC01		0.004	0.02	0.822
T14C02	Benz(ghi)perylene	0.004	0.02	1.44
TZC01		0.004	0.02	0.649
T14C02	Coronene	0.004	0.02	0.449
TZC01		0.004	0.02	0.14
T14C02	Dibenz(a,h)anthracene	0.004	0.02	0.341
TZC01		0.004	0.02	0.189
T14C02	Fluoranthene	0.004	0.02	1.69
TZC01		0.004	0.02	0.885
T14C02	Fluorene	0.004	0.02	0.213
TZC01		0.004	0.02	0.102

(sample) = Insignificant = (sample) < 5 x PQL				
(sample) = Significant = (sample) > 5 x PQL				
Sample ID	Analyte	PQL (LOR)	Significance (5 x PQL)	Concentration mg/kg
T14C02	Indeno(1,2,3-cd)pyrene	0.004	0.02	1.18
TZC01		0.004	0.02	0.482
T14C02	Perylene	0.004	0.02	0.374
TZC01		0.004	0.02	0.206
T14C02	Total PAH	0.004	0.02	21.5
TZC01		0.004	0.02	12.7
T17C01	Cadmium	0.1	0.5	0.7
TZC02		0.1	0.5	0.4
T17C01	TPH C10-C28	3	12	136
TZC02		3	12	19
T17C01	TPH C29-C36	5	25	145
TZC02		5	25	23
T17C01	TPH C10-C36	3	12	293
TZC02		3	12	42
T17C01	Acenaphthylene	0.004	0.02	0.156
TZC02		0.004	0.02	0.026
T17C01	Benz(a)pyrene	0.004	0.02	0.300
TZC02		0.004	0.02	0.035
T17C01	Benz(b)fluoranthene	0.004	0.02	0.297
TZC02		0.004	0.02	0.035
T17C01	Chrysene	0.004	0.02	0.229
TZC02		0.004	0.02	0.030
T17C01	Fluoranthene	0.004	0.02	0.385
TZC02		0.004	0.02	0.037
T17C01	Pyrene	0.004	0.02	0.588
TZC02		0.004	0.02	0.053
T17C01	Total PAH	0.004	0.02	3.30
TZC02		0.004	0.02	0.216
T14A	ANC	0.01	0.05	1.91
TZA01		0.01	0.05	0.75
T14A	Acidity – ANC	10	50	1,190
TZA01		10	50	470
T14A	pHox	0.1	0.5	7.4
TZA01		0.1	0.5	3.2
T14A	Acid Volatile Sulfur	0.001	0.005	0.012**
TZA01		0.001	0.005	0.034**

* Denotes sample concentration below EIL

In two cases, the contaminant levels were considered insignificant (less than $5 \times \text{PQL}$), and as both the concentrations were below or near detection limits. Higher RPDs are often obtained from contaminant levels close to the LOR which are highlighted in “green” as insignificant as these results merely reflect that analytical test accuracy decreases near the limit of detection.

In the other circumstances, the RPD was greater than 50% and at least one of the concentrations were greater than $5 \times \text{PQL}$. This, along with the fact that many other metal RPDs were approaching the QA/QC limit, suggests that the sediment is likely heterogeneous. The higher concentration of each set of samples has been adopted. As such these have not affected the overall data assessment.

The ASS RPDs exceedances are due to the heterogeneous nature of shell fragments within the sediment. These results have not effected the overall assessment of the sediments, as PASS has been identified within all sediments.

1.3.2 Surface Water Duplicates

In accordance with the quality assurance and quality control requirements one field duplicate was collected, the results of which are presented in Appendix 7-8 to 7-13. The duplicate sample TZW was collected from primary location T02.

A total of 199 of the 203 analyte tests (98%) performed on the field duplicate water samples had a RPD within 50% of the original samples indicating the sampling and analysis procedures applied by RPS and the laboratory were generally reproducible.

A summary of the analytes that were outside of the adopted criteria is provided in Table 7-B below based on a PQL/LOR ratio of <5 .

Table 7-B: Surface Water Duplicate Results Summary

(sample) = Insignificant = (sample) < 5 x PQL				
(sample) = Significant = (sample) > 5 x PQL				
Sample ID	Analyte	PQL (LOR)	Significance (5 x PQL)	Concentration mg/L
Field Duplicate (RPD>50%)				
T02W	Copper	0.01	0.05	0.003
TZW		0.01	0.05	0.012
T02W	Thermo-tolerant Coliforms	1	5	20*
TZW		1	5	11*
T02W	Phosphorous Reactive	0.01	0.05	0.01*
TZW		0.01	0.05	0.02*
T02W	Phosphorus	0.01	0.05	0.05*
TZW		0.01	0.05	0.1

* Denotes sample concentration below FWG or Primary Contact guideline
** Denotes no guideline

In two the case, the contaminant levels were considered insignificant (less than 5 × PQL), and as the concentrations were below or near detection limits. It is common for RPDs above 50% to occur in samples with contaminant levels close to detection limit concentrations. This is unavoidable and merely reflects that analytical test accuracy decreases near the limit of detection.

In two cases, the RPD was greater than 50% and at least one concentration is greater than 5 × PQL. The sample being higher concentration has been adopted and as such has not affected the overall data assessment.

1.3.3 Pore Water Duplicates

In accordance with the quality assurance and quality control requirements one field duplicate was collected, the results of which are presented in Table 7-8 to 7-13. The duplicate sample TZP was collected from primary location T29.

A total of 194 of the 203 analyte tests (96%) performed on the field duplicate pore water samples had a RPD within 50% of the original samples indicating the sampling and analysis procedures applied by RPS and the laboratory were generally reproducible.

A summary of the analytes that were outside of the adopted criteria is provided in Table 7-C below based on a PQL/LOR ratio of <5.

Table 7-C: Pore Water Duplicate Results Summary

(sample) = Insignificant = (sample) < 5 x PQL				
(sample) = Significant = (sample) > 5 x PQL				
Sample ID	Analyte	PQL (LOR)	Significance (5 × PQL)	Concentration mg//L
Field Duplicate (RPD>50%)				
T29P	Benz(a)anthracene	0.00002	0.0001	0.00003**
TZP		0.00002	0.0001	0.00006**
T29P	Benz(a)pyrene	0.000005	0.000025	0.000047**
TZP		0.000005	0.000025	0.000086**
T29P	Benz(b)fluoranthene	0.00002	0.0001	0.00004**
TZP		0.00002	0.0001	0.00008**
T29P	Benz(ghi)perylene	0.00002	0.0001	0.00003**
TZP		0.00002	0.0001	0.00006**
T29P	Chrysene	0.00002	0.0001	0.00003**
TZP		0.00002	0.0001	0.00006**
T29P	Fluoranthene	0.00002	0.0001	0.00005**
TZP		0.00002	0.0001	0.00011**
T29P	Indeno(1,2,3-cd)pyrene	0.00002	0.0001	0.00002**
TZP		0.00002	0.0001	0.00004**

(sample) = Insignificant = (sample) < 5 x PQL				
(sample) = Significant = (sample) > 5 x PQL				
Sample ID	Analyte	PQL (LOR)	Significance (5 × PQL)	Concentration mg//L
T29P	Pyrene	0.00002	0.0001	0.00009**
TZP		0.00002	0.0001	0.00016**
T29P	Total PAH	0.000005	0.000025	0.000367**
TZP		0.000005	0.000025	0.000806**

* Denotes sample concentration below FWG

** Denotes no guideline

In four cases the RPD was greater than 50% and at least one of the concentrations were greater than 5 × PQL. None of the analytes had FWG guidelines, and only benzo(a)pyrene has a DoH guideline, of which it did not exceed. The higher concentration sample has been adopted and as such has not affected the overall data assessment.

1.3.4 Elutriate Duplicates

In accordance with the quality assurance and quality control requirements one field duplicate was collected, the results of which are presented in Tables 7-8 and 7-12. The duplicate sample TZA01 was collected from primary location T14.

A total of 25 of the 29 analyte tests (86%) performed on the field duplicate water samples had a RPD within 50% of the original samples indicating the sampling and analysis procedures applied by RPS and the laboratory were generally reproducible.

A summary of the analytes that were outside of the adopted criteria is provided in Table 7-D below based on a PQL/LOR ratio of <5.

Table 7-D: Elutriate Duplicate Results Summary

(sample) = Insignificant = (sample) < 5 x PQL				
(sample) = Significant = (sample) > 5 x PQL				
Sample ID	Analyte	PQL (LOR)	Significance (5 × PQL)	Concentration mg//L
Field Duplicate (RPD>50%)				
T14A	Arsenic	0.0005	0.0025	0.006*
TZA01		0.0005	0.0025	0.0128*
T14A	Iron	0.005	0.025	0.010*
TZA01		0.005	0.025	0.199*
T14A	Molybdenum	0.0001	0.0005	0.1160*
TZA01		0.0001	0.0005	0.0138*

* Denotes sample concentration below FWG

** Denotes no guidelines exists

For all cases, the RPD was greater than 50% and at least one of the concentrations were greater than 5 × PQL. For the dissolved metals, all samples were below FWG and DoH guidelines, and as such the overall data assessment was not affected.

1.3.5 Sediment Triplicates

In accordance with the quality assurance and quality control requirements one field triplicate were collected, the results of which are presented in Tables 7-1 to 7-7. The triplicate sample of TZZ02 was collected from primary location T17.

A total of 161 of the 169 analyte tests (95%) performed on the field duplicate sediment samples had a Relative Percentage Difference (RPD) within 50% of the original samples indicating the sampling and analysis procedures applied by RPS and the laboratory were generally reproducible.

A summary of the analytes that were outside of the adopted criteria is provided in Table 7-E below based on a PQL/LOR ratio of <5.

Table 7-E: Sediment Triplicate Results Summary

(sample) = Insignificant = (sample) < 5 x PQL				
(sample) = Significant = (sample) > 5 x PQL				
Sample ID	Analyte	PQL (LOR)	Significance (5 × PQL)	Concentration mg/kg
Field Triplicate (RPD>50%)				
T17C01	Boron	50	250	110**
TZZC02		5	25	36**
T17C01	Cadmium	0.1	0.5	0.7*
TZZC02		0.1	0.5	1.4*
T17C01	Tin	5	25	7**
TZZC02		3	12	4**
T17C01	TPH C10-C14	3	12	12**
TZZC02		20	100	31**
T17C01	Benz(a)anthracene	0.004	0.02	0.21*
TZZC02		0.01	0.05	0.45*
T17C01	Benz(a)pyrene	0.004	0.02	0.30*
TZZC02		0.01	0.05	0.63*
T17C01	Indeno(1,2,3-cd)pyrene	0.004	0.02	0.106**
TZZC02		0.01	0.05	0.410**
T17C01	Naphthalene	0.004	0.02	0.118*
TZZC02		0.01	0.05	0.070*

* Denotes sample concentration below ISQG-Low

** Denotes no guideline exists

As the laboratory LORs differed somewhat between SGS and ALS, there is some difficulty in assessing the significance of such RPDs above 50% for the triplicates.

In five circumstances, the RPD was greater than 50% and the concentrations were greater than 5 × PQL. Further explanation is provided below:

- In four of these cases, both contaminant concentrations were below the ISQG-Low and therefore did not affect the overall data assessment and as such no reanalysis was considered necessary.
- In the case of Indeno(1,2,3-cd)pyrene, no guideline exists and therefore did not affect the overall data assessment.

1.3.6 Pore Water Triplicates

In accordance with the quality assurance and quality control requirements one field triplicate was collected, the results of which are presented in Tables 7-8 to 7-13. The duplicate sample of TZZ was collected from location T29.

A total of 164 the 167 analyte tests (98%) performed on the field triplicate water samples had a Relative Percentage Difference (RPD) within 50% of the original samples indicating the sampling and analysis procedures applied by RPS and the laboratory were generally reproducible.

A summary of the analytes that were outside of the adopted criteria is provided in Table 7-F below based on a PQL/LOR ratio of <5.

Table 7-F: Pore Water Triplicate Results Summary

(sample) = Insignificant = (sample) < 5 x PQL				
(sample) = Significant = (sample) > 5 x PQL				
Sample ID	Analyte	PQL (LOR)	Significance (5 × PQL)	Concentration µg/L
Field Triplicate (RPD>50%)				
T29P	Aluminum	0.005	0.025	1.93
TZZ		0.001	0.005	0.53
T29P	Iron	0.005	0.025	4.42
TZZ		0.005	0.025	1.40
T29P	Total PAH	0.000005	0.000025	0.00009
TZZ		0.000005	0.000025	0.00002

* Denotes sample concentration below FWG
** Denotes no guideline exists

As the laboratory LORs differed somewhat between SGS and ALS, there is some difficulty in assessing the significance of such RPDs above 50% for the triplicates.

In all circumstances, either the primary of triplicate sample concentration was greater than $5 \times \text{PQL}$ and therefore deemed significant. Further explanation is provided below:

- In two of these cases, both contaminant concentrations were above the adopted guidelines. The primary sample reported the highest concentrations in all cases, and was used as primary results and therefore did not affect the overall data assessment. As such no reanalysis was considered necessary.
- No guidelines exist for total PAH.

1.3.7 Surface Water Triplicate

No surface water triplicate was collected, due to an error in the field, however the results from the pore water triplicate can be utilised, for suitability of field sampling procedures and laboratory methods, as the surface water samples were collected on the same day and were analysed using the same methods. Given the homogenous nature of the surface, indicated by the minimal differences observed in the duplicate results, it is deemed unlikely that a significant variation would be observed in a triplicate sample. As such this has not effected the overall assessment.

1.4 Field Rinsate

Tables 7-14 to 7-19 present the rinsate analytical results. Sampling was undertaken over four days and as such four field rinsates (TWR, TZR, TZR1, and TZR2) were collected and sent to the primary laboratory for analysis.

The majority of the rinsate samples had concentrations less than the laboratory LOR/PQL, with the exception of copper, lead, volatile acids and ammonia, which were detected at low levels. It is likely that the presence of metal contaminants in the rinsate samples has originated from the deionised water used during the rinsate process, or the preservatives used. These contaminants are also detected in the blank samples.

The deionised water used was sourced from a water purification company, which supplies commercial laboratories, and similar concentrations have been previously observed by RPS. Preservatives were in the appropriate laboratory supplied bottles, which are detailed in Table 4 of the SAP (RPS 2011), and are standard preservatives supplied by the laboratory. These preservatives are required to be used to stabilise certain analytes prior to analysis.

The contaminants are deemed insignificant ($<5 \times \text{LOR}$) and as such have not affected the overall analysis. This demonstrates no contamination has occurred from exposure to atmospheric conditions on the site during the sampling exercise

1.5 Field Blank

Tables 7-14 to 7-19 present the field blank analytical results. Sampling was undertaken over four days, thus four field blanks (TWB, TZB, TZB1 and TZB2) were collected and sent to the laboratory for analysis.

The majority of the field blanks had concentrations less than the laboratory LOR/PQL, with the exception of copper, iron, lead, volatile acids and ammonia, which were detected at low levels. It is likely that the presence of metal contaminants in the field blank samples is from the deionised water used during the sampling process, or the preservatives used. These contaminants were also found in the rinsates at similar concentrations.

The deionised water used was sourced from a water purification company, which supplies commercial laboratories, and similar concentrations have been previously observed by RPS. Preservatives were in the appropriate laboratory supplied bottles, which are detailed in Table 4 of the SAP (RPS 2011), and are standard preservatives supplied by the laboratory. These preservatives are required to be used to stabilise certain analytes prior to analysis.

The contaminants are deemed insignificant ($<5 \times \text{LOR}$) and as such have not affected the overall analysis. This demonstrates no contamination has occurred from exposure to atmospheric conditions on the site during the sampling exercise.

1.6 Laboratory QA/QC Evaluation

The CoCs and laboratory certificates of analysis are attached in Appendices 6 and 8. Laboratory duplicates are presented in Tables 7-20 to 7-28. A summary of the results is presented below:

- All laboratory method blanks were below their respective analyte LORs, indicating no contamination occurred during the sample preparation or subsequent analysis.
- All laboratory control standards had recoveries that were within their respective criteria, indicating that the analyses were undertaken with the necessary precision.
- The majority of the laboratory duplicates had RPDs within 50% of the original samples. The few exceptions, all relating to water samples, occurred with ammonia and both samples were less than $5 \times \text{LOR}$. This indicates that the analytical procedures applied by the laboratory were generally reproducible.
- All surrogates were within the acceptable range for organics being 60–130%, with 28 exceptions having low recoveries due to matrix interferences associated with the samples.

- A number of poor metal matrix spike recoveries were observed, but generally recoveries were within the acceptable limits. Each exception was due to either one of the following causes
 - a low recovery caused by a matrix interference from the sample
 - a non-determinant matrix spike, with an associated high or low recovery, due to a high background concentration of the target analyte in the original sample.

In both cases the failures are as a result of the individual sample and not the method. As such these have not affected the overall data assessment.

- A number of samples analytes were analysed outside their respective holding times. Holding times were exceeded by up to six days on one occasion.
- These holding time failures are not considered significant as the holding time failure, total organic carbon, is being analysed to determine the potential bioavailability of contaminants only. All samples were refrigerated prior to analysis and as such any breakdown of the organic carbon would have been slowed and considered to be minimal. Additionally the limits of reporting are in per cent (%) and as such any degradation would have minimal impact on the reported result. As such any potential loss of TOC, albeit deemed to be minimal, as a result of the holding time failure would result in a more conservative assessment. This holding time breach is considered to be insignificant and has not effected the overall assessment, as a more conservative approach has been taken.

1.7 QA/QC Data Quality

1.7.1 Documentation Completeness

Sampling logs were completed for each sampling location and matrix.

The field duplicate, triplicate, field blanks and rinsates are noted in the field logs. For each QA/QC sample the identifier and sample type are noted. The sampler, sampling conditions, date, and place at which the samples were taken are recorded on the log sheet. All QA/QC samples are recorded on CoCs. All QA/QC samples submitted to a NATA accredited laboratory for analysis have a signed laboratory report detailing the results of the analysis.

1.7.2 Data Completeness

All samples designated for chemical analysis were determined based on the historic site use. All sampling and analysis was undertaken in accordance with DEC requirements.

1.7.3 Data Comparability

There are a number of factors that contribute to, or detract from, data comparability. These can be grouped into two general categories, factors related to sample collection and handling, and factors related to the analytical methods used. Sample collection issues include sample support (i.e. exactly what was sampled) and acquisition techniques, environmental conditions at the time of sampling, and sample handling/preservation methods. Analytical issues related to data comparability include sample preparation, clean up, and determinative methods used. Analytical surety in this monitoring investigation was addressed by employing NATA accredited laboratories.

Sample collection issues were addressed by utilising laboratory issued, standard collection bottles appropriate for the analytes of interest, the use of rigorous decontamination procedures, using appropriate preservation and storage techniques and by keeping storage times to a minimum. These measures generally maintain, as much as is practically possible, the comparability of data between chronologically separate sampling events.

Sulfide and volatile acids for samples T07P, T29P, T31P, T32P and T02W were mistakenly left of the CoCs and was not realised until after the holding times had expired. However this has not effected the overall assessment and outcomes of the report.

1.7.4 Data Representativeness

The sample set detailed above was determined to be sufficiently representative of the sediments of the site for the purpose of the program. The duplicate and triplicate sample results were subjected to analytical data validation and it was concluded that the results could be used to confirm the conclusions about the quality of sediment on the site.

1.8 Data Comparability Checks

The sediment samples were collected by one field scientist throughout the sampling program. The field scientist followed the RPS field manual and employed the same sampling methodology and techniques. Although low level metal, volatile acid and ammonia concentrations were detected in the blanks and rinsate results these detections are not considered likely to cause bias in the site assessment.

Table 7-1
Sediment - Metals, Metalloids, Inorganics, Microbiological and Nutrients - Duplicates and Triplicates Results

Definitions:

LOR (Limits of Reporting),

ND denotes not detected. NG denotes no guideline. N denotes no asbestos identified. --- denotes not tested

Notes:

All values in mg/L unless indicated. Table uses colour coding for data interpretation.

denotes <LOR

denotes not calculated

Bold denotes >50%RPD

Sample ID	Date Sampled	Total Metals															Inorg		Pathogens		Nutrients								
		Aluminium	Arsenic	Boron	Cadmium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Selenium	Tin	Zinc	Cyanide	Total Organic Carbon	Enterococci Count	Termotolerant Coliforms	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	Total Nitrogen	Total Nitrogen Kjeldahl	NOX	Reactive Phosphorus	Total Phosphorus
Duplicates																													
T14C02	11/12/2012	10800	6	NT	1	34	117	28900	123	NT	127	0.1	NT	13	5	NT	600	1	2.51	10	3	NT	NT	NT	NT	NT	NT	NT	NT
TZC01	11/12/2012	10200	7	50	0.9	31	97	24400	95	3640	113	0.1	3	12	5	5	492	2	1.14	10	3	20	0.1	0.1	1190	1190	0.1	0.1	189
RPD (%)		6	15	#	11	9	19	17	26	#	12	0	#	8	#	#	20	67	75	0	0	#	#	#	#	#	#	#	#
T17C01	11/12/2012	19600	12	110	0.7	70	137	49200	228	8670	174	0.1	2	18	5	7	612	1	3.19	10	3	30	0.1	0.1	2220	2220	0.1	1.9	541
TZC02	11/12/2012	19700	9	110	0.4	61	90	47600	145	8690	180	0.1	2	16	5	6	384	2	3.16	10	3	30	0.1	0.1	2190	2190	0.1	2.3	586
RPD (%)		1	29	0	55	14	41	3	45	0	3	#	0	12	#	15	46	#	1	0	0	0	#	#	1	1	#	19	8
Triplicate																													
T17C01	11/12/2012	19600	12	110	0.7	70	137	49200	228	8670	174	0.1	2	18	5	7	612	1	3.19	10	3	30	0.1	0.1	2220	2220	0.1	1.9	541
TZC02	11/12/2012	24000	10	36	1.4	62	93	42000	170	7700	250	0.29	2	21	1	4	410	0.1	3.00	NT	NT	41	1.0	1.0	3000	3000	1.0	1.57	730
RPD (%)		20	18	101	67	12	38	16	29	12	36	#	0	15	#	55	40	#	6	---	---	31	#	#	30	30	#	19	30

Table 7-2
Sediment - TPH, MAHs and BTEX - Duplicates and Triplicates Results

Definitions:

LOR (Limits of Reporting),

ND denotes not detected. NG denotes no guideline. --- denotes not tested

Notes:

All values in mg/L unless indicated. Table uses colour coding for data interpretation.

denotes <LOR

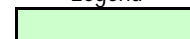
denotes not calculated

Bold denotes >50%RPD

Sample ID	Date Sampled	BTEX					MAHs									TPH				
		Benzene	Ethyl Benzene	meta,para-Xylene	ortho-Xylene	Toluene	1,2,4-Trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-Butylbenzene	n-Propylbenzene	p-Isopropyltoluene	sec-Butylbenzene	Styrene	tert-Butylbenzene	C06-9	C10-14	C15-28	C29-36	C10-C36
Duplicates																				
T14C02	11/12/2012	0.2	0.2	0.2	0.2	0.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	3	9	284	220	513
TZC01	11/12/2012	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	3	4	169	174	347
RPD (%)		#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	77	51	23	39
T17C01	11/12/2012	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	3	12	136	145	293
TZC02	11/12/2012	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	3	3	19	23	42
RPD (%)		#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	151	145	150
Triplicate																				
T17C01	11/12/2012	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	3	12	136	145	293
TZZC02	11/12/2012	0.1	0.1	0.2	0.1	0.1	NT	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	20	31	200	220	451
RPD (%)		#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	88	38	41	42

**Table 7-7
Acid Sulfate Soil Duplicate Results**

Legend



Denotes less than LOR

Definitions: NG (No Guideline), LOR (Limit of Reporting), Reaction Vigour (L=Low, M=Moderate, H=High, X=Extreme)

--- denotes not tested

denotes not calculated

Notes: This table utilises colour coding to aid data interpretation, avoid black and white reproduction

Sample ID	Date Sampled	Test	Acidity Trail - EA029B				CRS - EA027		AVS	Net Acidity		Net Acidity		ANC		
		ALHS code	23A		23F	s23F		22B			including ANC					
		Analyte	pH _{KCl}	pH _{Ox}	TAA	S _{TAA}	TPA	aS _{CR}	S _{CR}	AVS	S _{CR} + S _{TAA}		S _{CR} + S _{TAA} - ANC		ANC	ANC
		Units	pH	pH	mol(H ⁺ /tonne)	%S	mol(H ⁺ /tonne)	mol(H ⁺ /tonne)	%S	%S	mol(H ⁺ /tonne)	%S	mol(H ⁺ /tonne)	%S	mol(H ⁺ /tonne)	%S
LOR	0.1	0.1	2	0.005	2	8	0.02	0.02	10	0.02	10	0.02	5	0.01		
Duplicates																
T14A	11/12/2012		8.6	7.4	2	0.02	2	505	0.81	0.01	505	0.81	10	0.02	1190	1.91
TZA01	11/12/2012		8.3	3.2	2	0.02	380	614	0.98	0.03	614	0.98	301	0.48	470	0.75
RPD (%)			4	79	#	#	#	19	19	96	#	19	#	#	87	87

Table 7-8

Pore Water, Elutriate and Surface Water - Metals, Metalloids, Inorganics, Nutrients and Microbiological - Duplicates and Triplicates Results

Definitions:

LOR (Limits of Reporting),
 ND denotes not detected. NG denotes no guideline.

Notes:

All values in mg/L exc ept microbiological CFU/100mL. Table uses colour coding for data interpretation.

denotes <LOR

denotes not calculated

* concentrations converted to nitrate/nitrite as N

Bold denotes >50%RPD

Sample ID	Date Sampled	Total Metals																Misc	Pathogens		Nutrients								
		Aluminium	Arsenic	Boron	Cadmium	Chromium	Chromium VI	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Selenium	Tin	Zinc	Cyanide	Enterococci	Thermotolerant Coliforms	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	Nitrogen	Nitrogen Kjeldahl Total	NOX	Phosphorous Reactive	Phosphorus
Duplicates																													
T29P	18/12/2012	1.93	0.0042	3.08	0.0002	0.0059	0.01	0.011	4.42	0.0147	884	0.148	0.0001	0.0106	0.0035	0.002	0.005	0.043	0.004	3	1	1.06	0.01	0.01	1.4	1.4	0.01	0.1	0.18
TZP	18/12/2012	2.06	0.0045	3.07	0.0002	0.0062	0.01	0.012	4.69	0.0157	887	0.156	0.0001	0.0111	0.0033	0.002	0.005	0.064	0.004	4	1	1.15	0.01	0.01	1.4	1.4	0.01	0.1	0.18
RPD (%)		7	7	0	#	5	#	9	6	7	0	5	#	5	6	#	#	39	#	29	#	8	#	#	0	0	#	0	0
T02W	13/12/2012	0.114	0.001	3.01	0.0002	0.0005	0.01	0.003	0.201	0.0023	971	0.0328	0.0001	0.0084	0.0008	0.002	0.005	0.007	0.004	16	20	0.09	0.01	0.01	0.6	0.6	0.01	0.01	0.05
TZW	13/12/2012	0.144	0.001	3.08	0.0002	0.0005	0.01	0.012	0.269	0.0022	929	0.0535	0.0001	0.0089	0.0008	0.002	0.005	0.011	0.004	25	11	0.09	0.01	0.01	1	1	0.01	0.02	0.1
RPD (%)		23	0	2	#	#	#	120	29	4	4	48	#	6	0	#	#	44	#	44	58	0	#	#	50	50	#	67	67
T14A	11/12/2012	0.012	0.0060	3.12	0.0002	0.0005	---	0.001	0.010	0.0002	925	0.431	0.0001	0.1160	0.0006	0.002	0.005	0.005	---	---	---	---	---	---	---	---	---	---	---
TZA01	11/12/2012	0.005	0.0128	2.78	0.0002	0.0005	---	0.001	0.199	0.0002	934	0.696	0.0001	0.0138	0.0005	0.002	0.005	0.005	---	---	---	---	---	---	---	---	---	---	---
RPD (%)		#	72	12	#	#	---	#	181	#	1	47	#	157	#	#	#	#	---	---	---	---	---	---	---	---	---	---	---
Triplicates																													
T29P	18/12/2012	1.93	0.0042	3.08	0.0002	0.0059	0.01	0.011	4.42	0.0147	884	0.148	0.0001	0.0106	0.0035	0.002	0.005	0.043	0.004	3	1	1.06	0.01	0.01	1.4	1.4	0.01	0.1	0.18
TZZ	18/12/2012	0.53	0.01	2.90	0.001	0.01	0.002	0.01	1.40	0.01	900	0.13	0.00005	0.01	0.01	0.02	0.01	0.043	0.004	2	2	0.72	0.023	0.005	1.2	1.2	0.023	0.13	0.15
RPD (%)		114	#	6	#	#	#	#	104	#	2	13	#	#	#	#	#	0	0	40	#	38	#	#	15	15	#	26	18

Table 7-14
Rinsate and Blanks - Metals, Metalloids, Pathogens, Nutrients and Inorganics

Notes: Denotes below the laboratory limit of reporting (LOR).
All values in mg/L.

Sample ID	Date Sampled	Metals																	Misc					Pathogens		Nutrients								
		Aluminium	Arsenic	Barium	Boron	Cadmium	Chromium	Chromium VI	Copper	Iron	Lead	Manganese	Magnesium	Mercury	Molybdenum	Nickel	Selenium	Tin	Zinc	Cyanide	Cyanide (WAD)	Free Cyanide	Sulfide as S2-	Volatile Acids (as Acetic Acid)	Enterococci	Thermotolerant Coliforms	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	Total Nitrogen	Total Nitrogen Kjeldahl	NOX	Reactive Phosphorous	Total Phosphorus
Blanks																																		
TWB	13/12/2012	0.005	0.0002	0.0005	---	0.00005	0.0002	0.01	0.0006	0.002	0.0001	0.0005	1	0.0001	0.0001	0.0005	0.0002	0.0002	0.002	0.004	---	---	0.1	30	1	1	0.01	0.01	0.01	0.1	0.1	0.01	0.01	0.01
TZB	18/12/2012	0.005	0.0002	0.0005	0.005	0.00005	0.0002	0.01	0.001	0.003	0.0005	0.0005	1	0.0001	0.0001	0.0005	0.0002	0.0002	0.001	0.004	---	---	0.1	30	1	1	0.01	0.01	0.01	0.1	0.1	0.01	0.01	0.01
TZB1	10/12/2012	0.01	0.001	---	0.05	0.0001	0.001	---	0.001	0.05	0.001	0.001	1	0.0001	0.001	0.001	0.01	0.001	0.005	0.004	---	---	---	---	---	---	0.03	0.01	0.01	0.1	0.1	0.01	0.01	0.01
TZB2	11/12/2012	0.01	0.001	---	0.05	0.0001	0.001	---	0.001	0.05	0.001	0.001	1	0.0001	0.001	0.002	0.01	0.001	0.005	0.004	0.004	---	---	---	---	0.01	0.01	0.01	0.1	0.1	0.01	0.01	0.01	
Rinsates																																		
TWR	13/12/2012	0.005	0.0002	0.0005	---	0.00005	0.0002	0.01	0.0006	0.002	0.0001	0.0005	1	0.0001	0.0001	0.0005	0.0002	0.0002	0.001	0.004	---	---	0.1	30	1	1	0.01	0.01	0.01	0.1	0.1	0.01	0.01	0.01
TZR	18/12/2012	0.005	0.0002	0.0005	0.005	0.00005	0.0002	0.01	0.0006	0.002	0.0002	0.0005	1	0.0001	0.0001	0.0005	0.0002	0.0002	0.001	0.004	---	---	0.1	30	1	1	0.01	0.01	0.01	0.1	0.1	0.01	0.01	0.01
TZR1	10/12/2012	0.01	0.001	---	0.05	0.0001	0.001	---	0.001	0.05	0.001	0.001	1	0.0001	0.001	0.001	0.01	0.001	0.005	0.004	---	---	---	---	---	---	0.02	0.01	0.01	0.1	0.1	0.01	0.01	0.01
TZR2	11/12/2012	0.01	0.001	---	0.05	0.0001	0.001	---	0.001	0.05	0.001	0.001	1	0.0001	0.001	0.001	0.01	0.001	0.005	0.004	0.004	---	---	---	---	0.01	0.01	0.01	0.1	0.1	0.01	0.01	0.01	

Table 7-15
Rinsate and Blanks - TPH, MAHs and BTEX

Notes: Denotes below the laboratory limit of reporting (LOR).
 All values in mg/L.

Sample ID	Date Sampled	BTEX						MAHs									TPH							
		Benzene	Ethyl Benzene	meta,para-Xylene	ortho-Xylene	Toluene	Xylene	1,2,4-Trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-Butylbenzene	n-Propylbenzene	p-Isopropyltoluene	sec-Butylbenzene	Styrene	tert-Butylbenzene	C06-9	C10-14	C15-28	C29-36	C10-C36			
Blanks																								
TWB	13/12/2012	0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.05	0.05
TZB	18/12/2012	0.002	0.002	0.002	0.002	0.006	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.05	0.05
TZB1	10/12/2012	0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.05	0.05
TZB2	11/12/2012	0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.05	0.05
Rinsates																								
TWR	13/12/2012	0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.05	0.05
TZR	18/12/2012	0.002	0.002	0.002	0.002	0.006	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.05	0.05
TZR1	10/12/2012	0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.05	0.05
TZR2	11/12/2012	0.001	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.02	0.05	0.1	0.05	0.05

Table 7-17
Rinsate and Blanks - OC/OP Pesticides

Notes: Denotes below the laboratory limit of reporting (LOR).
All values in mg/L.

Sample ID	Date Sampled	OCs																									
		Aldrin	Aldrin + Dieldrin	Alpha-BHC	Beta-BHC	Chlordane	cis-Chlordane	DDD	DDD + DDE + DDT	DDE	DDT	Delta-BHC	Dieldrin	Endosulphan I	Endosulphan II	Endosulphan Sulfate	Endrin	Endrin Aldehyde	Endrin Ketone	gamma-BHC (Lindane)	HCB	Heptachlor	Heptachlor Epoxide	Methoxychlor	Oxychlorane	trans-Chlordane	
Blanks																											
TWB	13/12/2012	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00019	0.00001	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001	0.00001	0.00001	0.00001	0.00001
TZB	18/12/2012	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.000189	0.00001	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001	0.00001	0.00001	0.00001	0.00001
TZB1	10/12/2012	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	---	0.0005	0.0005
TZB2	11/12/2012	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	---	0.0005	0.0005
Rinsates																											
TWR	13/12/2012	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00019	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001	0.00001	0.00001	0.00001	0.00001
TZR	18/12/2012	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00019	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00005	0.00001	0.00001	0.00001	0.00001	0.00001
TZR1	10/12/2012	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	---	0.0005	0.0005
TZR2	11/12/2012	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	---	0.0005	0.0005

Sample ID	Date Sampled	OPs																		
		Azinphos Methyl	Bromophos Ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Monocrotophos	Parathion	Parathion-methyl	Pirimphos-ethyl	Prothiofos
Blanks																				
TWB	13/12/2012	0.0001	0.0001	0.0001	0.0001	0.00005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
TZB	18/12/2012	0.0001	0.0001	0.0001	0.0001	0.00005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
TZB1	10/12/2012	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	0.002	0.002	0.0005	0.0005	0.0005
TZB2	11/12/2012	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	0.002	0.002	0.0005	0.0005	0.0005
Rinsates																				
TWR	13/12/2012	0.0001	0.0001	0.0001	0.0001	0.00005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
TZR	18/12/2012	0.0001	0.0001	0.0001	0.0001	0.00005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
TZR1	10/12/2012	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	0.002	0.002	0.0005	0.0005	0.0005
TZR2	11/12/2012	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.002	0.002	0.002	0.0005	0.0005	0.0005

Table 7-18
Rinsate and Blanks - PAHs, PCBs and Phenols

Notes: Denotes below the laboratory limit of reporting (LOR).
All values in mg/L.

Sample ID	Date Sampled	PAHs																	
		Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benz(a)pyrene	Benz(b)fluoranthene	Benz(ghi)perylene	Benz(k)fluoranthene	Benzo(a)pyrene TEQ (WHO)	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	Total PAH
Blanks																			
TWB	13/12/2012	0.00002	0.00002	0.00002	0.00002	0.000005	0.00002	0.00002	0.00002	0.000005	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.000005
TZB	18/12/2012	0.00002	0.00002	0.00002	0.00002	0.000005	0.00002	0.00002	0.00002	0.000005	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00005
TZB1	10/12/2012	0.001	0.001	0.001	0.001	0.0005	0.001	0.001	0.001	0.0005	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.0005
TZB2	11/12/2012	0.001	0.001	0.001	0.001	0.0005	0.001	0.001	0.001	0.0005	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.0005
Rinsates																			
TWR	13/12/2012	0.00002	0.00002	0.00002	0.00002	0.000005	0.00002	0.00002	0.00002	0.000005	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.000005
TZR	18/12/2012	0.00002	0.00002	0.00002	0.00002	0.000005	0.00002	0.00002	0.00002	0.000005	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00004
TZR1	10/12/2012	0.001	0.001	0.001	0.001	0.0005	0.001	0.001	0.001	0.0005	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.0005
TZR2	11/12/2012	0.001	0.001	0.001	0.001	0.0005	0.001	0.001	0.001	0.0005	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.0005

Sample ID	Date Sampled	PCBs									Phenols										
		Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Total Polychlorinated biphenyls	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-dimethylphenol	2,6-dichlorophenol	2-chlorophenol	2-methylphenol	2-nitrophenol	3,4-methylphenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol
Blanks																					
TWB	13/12/2012	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001
TZB	18/12/2012	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001
TZB1	10/12/2012	---	---	---	---	---	---	---	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001	
TZB2	11/12/2012	---	---	---	---	---	---	---	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001	
Rinsates																					
TWR	13/12/2012	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001
TZR	18/12/2012	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001
TZR1	10/12/2012	---	---	---	---	---	---	---	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001	
TZR2	11/12/2012	---	---	---	---	---	---	---	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001	

Table 7-19
Rinsate and Blanks - VOCs

Notes: Denotes below the laboratory limit of reporting (LOR).
All values in mg/L.

Sample ID	Date Sampled	VOCs																								
		1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropylene	1,2,3-trichlorobenzene	1,2,3-Trichloropropane	1,2,4-trichlorobenzene	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane (EDB)	1,2-dichlorobenzene	1,2-dichloroethane	1,2-Dichloropropane	1,3-dichlorobenzene	1,3-Dichloropropane	1,4-dichlorobenzene	2,2-Dichloropropane	2-Butanone (MEK)	2-Chlorotoluene	2-Hexanone (MBK)	4-Chlorotoluene	4-Methyl-2-pentanone (MIBK)	Bromobenzene
Blanks																										
TWB	13/12/2012	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005
TZB	18/12/2012	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005
TZB1	10/12/2012	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005
TZB2	11/12/2012	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005
Rinsates																										
TWR	13/12/2012	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005
TZR	18/12/2012	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005
TZR1	10/12/2012	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005
TZR2	11/12/2012	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.05	0.005

Sample ID	Date Sampled	VOCs																									
		Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-Dichloropropylene	cis-1,4-Dichloro-2-butene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Hexachloro-1,3-butadiene	Iodomethane	Pentachloroethane	Tetrachloroethene (PCE)	trans-1,2-dichloroethene	trans-1,3-Dichloropropylene	trans-1,4-Dichloro-2-butene	Trichloroethene (TCE)	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride
Blanks																											
TWB	13/12/2012	0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	0.05
TZB	18/12/2012	0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	0.05
TZB1	10/12/2012	0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	0.05
TZB2	11/12/2012	0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	0.05
Rinsates																											
TWR	13/12/2012	0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	0.05
TZR	18/12/2012	0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	0.05
TZR1	10/12/2012	0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	0.05
TZR2	11/12/2012	0.005	0.005	0.05	0.005	0.005	0.005	0.05	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	0.05

**Table 7-21
Sediment - Laboratory Duplicates - TPH, MAH, and BTEX**

Notes: Denotes below the laboratory limit of reporting (LOR).
 All values in mg/L.
 --- denotes not tested
Bold denotes >35%RPD

Sample ID	Lab ID	Date Sampled	BTEX					MAHs									TPH						
			Benzene	Ethyl Benzene	meta,para-Xylene	ortho-Xylene	Toluene	1,2,4-Trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-Butylbenzene	n-Propylbenzene	p-Isopropyltoluene	sec-Butylbenzene	Styrene	tert-Butylbenzene	C06-9	C10-14	C15-28	C29-36			
T01C01	EP1210303001	10/12/2012	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	---	3	37	38	
	3136157-005_EP1210303	10/12/2012	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	---	3	39	40	
RPD (%)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	---	#	5	5	
T13C01	EP1210303011	10/12/2012	0.2	0.2	0.2	0.2	0.2	---	---	---	---	---	---	---	---	---	---	---	---	3	47	58	
	3136157-017_EP1210303	10/12/2012	0.2	0.2	0.2	0.2	0.2	---	---	---	---	---	---	---	---	---	---	---	---	3	53	57	
RPD (%)			#	#	#	#	#	---	---	---	---	---	---	---	---	---	---	---	---	#	12	2	
T10C01	EP1210363001	11/12/2012	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	396	316	
	3140488-005_EP1210363	11/12/2012	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3	53	57	
RPD (%)			---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	#	153	139	
T18C01	EP1210363011	11/12/2012	0.2	0.2	0.2	0.2	0.2	---	---	---	---	---	---	---	---	---	---	---	3	5	94	98	
	3140488-017_EP1210363	11/12/2012	0.2	0.2	0.2	0.2	0.2	---	---	---	---	---	---	---	---	---	---	---	3	4	108	96	
RPD (%)			#	#	#	#	#	---	---	---	---	---	---	---	---	---	---	---	#	22	14	2	
T12C01	EP1210363002	11/12/2012	0.2	0.2	0.2	0.2	0.2	---	---	---	---	---	---	---	---	---	---	---	3	3	59	76	
	3146660-004_EP1210363	11/12/2012	0.2	0.2	0.2	0.2	0.2	---	---	---	---	---	---	---	---	---	---	---	3	3	58	80	
RPD (%)			#	#	#	#	#	---	---	---	---	---	---	---	---	---	---	---	#	#	2	5	
T17C01	EP1210363009	11/12/2012	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	3	---	---	---	
	3150761-004_EP1210363	11/12/2012	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	3	---	---	---	
RPD (%)			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	---	---	---

APPENDIX 8

Pore Water and Surface Water Laboratory Reporting

SILLIKER AUSTRALIA
PERTH LABORATORY

181 Claisebrook Road
Perth, WA 6000
08-9227-6499 Fax 08-9227-6455

CERTIFICATE OF ANALYSIS

COA No:	PER-50471058-0
Supersedes:	None
COA Date:	21/12/2012
Page 1 of 2	

TO:

Scott James
ALS Environmental
10 Hod Way
Malaga, WA 6090

Received From:	Malaga, WA
Received Date:	19/12/2012
P.O.#:	314794
Location of Test: (except where noted) Perth, WA	

Analytical Results

Desc. 1:	ALS Batch No.: EP1210564	Sample Number:	451910995
Desc. 2:	ALS Sample No.: EP1210564-001	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID:T29P	Temp Rec'd (°C):	5.0
Desc. 4:	Date Collected: 18/12/12	Date Started:	19/12/2012

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Thermotolerant Coliforms	<1	CFU/100mL	M12.2	20/12/2012	
Enterococci Count	3 est.	CFU/100mL	M14	21/12/2012	

Desc. 1:	ALS Batch No.: EP1210564	Sample Number:	451910997
Desc. 2:	ALS Sample No.: EP1210564-002	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID:T30P	Temp Rec'd (°C):	5.0
Desc. 4:	Date Collected: 18/12/12	Date Started:	19/12/2012

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Thermotolerant Coliforms	<1	CFU/100mL	M12.2	20/12/2012	
Enterococci Count	<1	CFU/100mL	M14	21/12/2012	

Desc. 1:	ALS Batch No.: EP1210564	Sample Number:	451910998
Desc. 2:	ALS Sample No.: EP1210564-003	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID:T31P	Temp Rec'd (°C):	5.0
Desc. 4:	Date Collected: 18/12/12	Date Started:	19/12/2012

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Thermotolerant Coliforms	<1	CFU/100mL	M12.2	20/12/2012	
Enterococci Count	<1	CFU/100mL	M14	21/12/2012	

Desc. 1:	ALS Batch No.: EP1210564	Sample Number:	451910999
Desc. 2:	ALS Sample No.: EP1210564-004	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID:T32P	Temp Rec'd (°C):	5.0
Desc. 4:	Date Collected: 18/12/12	Date Started:	19/12/2012

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Thermotolerant Coliforms	<1	CFU/100mL	M12.2	20/12/2012	
Enterococci Count	<1	CFU/100mL	M14	21/12/2012	



NATA Composite Accreditation Number: 2020
Melbourne: Site Microbiology No: 2013, Site Chemistry No: 2856
Sydney: Site Microbiology No: 2759, Site Chemistry No: 2135
Perth: Site Microbiology No: 10635, Site Chemistry No: 5081
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PERTH LABORATORY**

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Perth, WA 6000
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CERTIFICATE OF ANALYSIS

COA No:	PER-50471058-0
Supersedes:	None
COA Date:	21/12/2012
Page 2 of 2	

TO:

Scott James
ALS Environmental
10 Hod Way
Malaga, WA 6090

Received From:	Malaga, WA
Received Date:	19/12/2012
P.O.#:	314794
Location of Test: (except where noted) Perth, WA	

Analytical Results

Desc. 1:	ALS Batch No.: EP1210564	Sample Number:	451911000
Desc. 2:	ALS Sample No.: EP1210564-005	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID:TZP	Temp Rec'd (°C):	5.0
Desc. 4:	Date Collected: 18/12/12	Date Started:	19/12/2012

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Thermotolerant Coliforms	1 est.	CFU/100mL	M12.2	21/12/2012	
Enterococci Count	4 est.	CFU/100mL	M14	21/12/2012	

Desc. 1:	ALS Batch No.: EP1210564	Sample Number:	451911003
Desc. 2:	ALS Sample No.: EP1210564-006	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID:TZR	Temp Rec'd (°C):	5.0
Desc. 4:	Date Collected: 18/12/12	Date Started:	19/12/2012

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Thermotolerant Coliforms	<1	CFU/100mL	M12.2	20/12/2012	
Enterococci Count	<1	CFU/100mL	M14	21/12/2012	

Desc. 1:	ALS Batch No.: EP1210564	Sample Number:	451911005
Desc. 2:	ALS Sample No.: EP1210564-007	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID:TZB	Temp Rec'd (°C):	5.0
Desc. 4:	Date Collected: 18/12/12	Date Started:	19/12/2012

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Thermotolerant Coliforms	<1	CFU/100mL	M12.2	20/12/2012	
Enterococci Count	<1	CFU/100mL	M14	21/12/2012	



**JAMES MILLS
LABORATORY DIRECTOR**



NATA Corporate Accreditation Number: 2020
Melbourne: Site Microbiology No: 2013, Site Chemistry No: 2856
Sydney: Site Microbiology No: 2759, Site Chemistry No: 2135
Perth: Site Microbiology No: 10635, Site Chemistry No: 5081
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PERTH LABORATORY

181 Claisebrook Road
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CERTIFICATE OF ANALYSIS

COA No:	PER-50469053-0
Supersedes:	None
COA Date:	16/12/2012
Page 1 of 6	

TO:

Scott James
ALS Environmental
10 Hod Way
Malaga, WA 6090

Received From:	Malaga, WA
Received Date:	14/12/2012
P.O.#:	314787
Location of Test: (except where noted) Perth, WA	

Analytical Results

Desc. 1:	ALS Batch No.: EP1210463	Sample Number:	451905780
Desc. 2:	ALS Sample No.: EP1210463-001	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T01W	Temp Rec'd (°C):	10.0
Desc. 4:	Date Collected: 13/12/2012	Date Started:	14/12/2012

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Thermotolerant Coliforms	100 est.	CFU/100mL	M12.2	16/12/2012	
The presence of high numbers of non-coliform bacteria may have caused an underestimation in the count of Thermotolerant coliforms bacteria					
Enterococci Count	38	CFU/100mL	M14	16/12/2012	

Desc. 1:	ALS Batch No.: EP1210463	Sample Number:	451905781
Desc. 2:	ALS Sample No.: EP1210463-002	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T02W	Temp Rec'd (°C):	10.0
Desc. 4:	Date Collected: 13/12/2012	Date Started:	14/12/2012

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Thermotolerant Coliforms	20	CFU/100mL	M12.2	16/12/2012	
The presence of high numbers of non-coliform bacteria may have caused an underestimation in the count of Thermotolerant coliforms bacteria					
Enterococci Count	16 est.	CFU/100mL	M14	16/12/2012	

Desc. 1:	ALS Batch No.: EP1210463	Sample Number:	451905782
Desc. 2:	ALS Sample No.: EP1210463-003	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T025W	Temp Rec'd (°C):	10.0
Desc. 4:	Date Collected: 13/12/2012	Date Started:	14/12/2012

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Thermotolerant Coliforms	90 est.	CFU/100mL	M12.2	16/12/2012	
The presence of high numbers of non-coliform bacteria may have caused an underestimation in the count of Thermotolerant coliforms bacteria					
Enterococci Count	19 est.	CFU/100mL	M14	16/12/2012	



NATA Composite Accreditation Number: 2020
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CERTIFICATE OF ANALYSIS

COA No:	PER-50469053-0
Supersedes:	None
COA Date:	16/12/2012
Page 2 of 6	

TO:

Scott James
ALS Environmental
10 Hod Way
Malaga, WA 6090

Received From:	Malaga, WA
Received Date:	14/12/2012
P.O.#:	314787
Location of Test: (except where noted) Perth, WA	

Analytical Results

Desc. 1:	ALS Batch No.: EP1210463	Sample Number:	451905783
Desc. 2:	ALS Sample No.: EP1210463-004	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T026W	Temp Rec'd (°C):	10.0
Desc. 4:	Date Collected: 13/12/2012	Date Started:	14/12/2012

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Thermotolerant Coliforms	100 est.	CFU/100mL	M12.2	16/12/2012	
The presence of high numbers of non-coliform bacteria may have caused an underestimation in the count of Thermotolerant coliforms bacteria					
Enterococci Count	24	CFU/100mL	M14	16/12/2012	

Desc. 1:	ALS Batch No.: EP1210463	Sample Number:	451905784
Desc. 2:	ALS Sample No.: EP1210463-005	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T027W	Temp Rec'd (°C):	10.0
Desc. 4:	Date Collected: 13/12/2012	Date Started:	14/12/2012

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Thermotolerant Coliforms	21	CFU/100mL	M12.2	16/12/2012	
Enterococci Count	26	CFU/100mL	M14	16/12/2012	

Desc. 1:	ALS Batch No.: EP1210463	Sample Number:	451905785
Desc. 2:	ALS Sample No.: EP1210463-006	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T028W	Temp Rec'd (°C):	10.0
Desc. 4:	Date Collected: 13/12/2012	Date Started:	14/12/2012

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Thermotolerant Coliforms	23	CFU/100mL	M12.2	16/12/2012	
Enterococci Count	26	CFU/100mL	M14	16/12/2012	



NATA Corporate Accreditation Number: 2020
Melbourne: Site Microbiology No: 2013, Site Chemistry No: 2856
Sydney: Site Microbiology No: 2759, Site Chemistry No: 2135
Perth: Site Microbiology No: 10635, Site Chemistry No: 5081
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PERTH LABORATORY

181 Claisebrook Road
Perth, WA 6000
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CERTIFICATE OF ANALYSIS

COA No:	PER-50469053-0
Supersedes:	None
COA Date:	16/12/2012
Page 3 of 6	

TO:

Scott James
ALS Environmental
10 Hod Way
Malaga, WA 6090

Received From:	Malaga, WA
Received Date:	14/12/2012
P.O.#:	314787
Location of Test: (except where noted) Perth, WA	

Analytical Results

Desc. 1:	ALS Batch No.: EP1210463	Sample Number:	451905786
Desc. 2:	ALS Sample No.: EP1210463-007	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: TZW	Temp Rec'd (°C):	10.0
Desc. 4:	Date Collected: 13/12/2012	Date Started:	14/12/2012
Analyte	Result Units	Method Reference	Result Date Loc.
Thermotolerant Coliforms	11 est. CFU/100mL	M12.2	16/12/2012
Enterococci Count	25 CFU/100mL	M14	16/12/2012

Desc. 1:	ALS Batch No.: EP1210463	Sample Number:	451905787
Desc. 2:	ALS Sample No.: EP1210463-008	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: TWR	Temp Rec'd (°C):	10.0
Desc. 4:	Date Collected: 13/12/2012	Date Started:	14/12/2012
Analyte	Result Units	Method Reference	Result Date Loc.
Thermotolerant Coliforms	<1 CFU/100mL	M12.2	15/12/2012
Enterococci Count	<1 CFU/100mL	M14	16/12/2012

Desc. 1:	ALS Batch No.: EP1210463	Sample Number:	451905788
Desc. 2:	ALS Sample No.: EP1210463-009	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: TWB	Temp Rec'd (°C):	10.0
Desc. 4:	Date Collected: 13/12/2012	Date Started:	14/12/2012
Analyte	Result Units	Method Reference	Result Date Loc.
Thermotolerant Coliforms	<1 CFU/100mL	M12.2	15/12/2012
Enterococci Count	<1 CFU/100mL	M14	16/12/2012

Desc. 1:	ALS Batch No.: EP1210463	Sample Number:	451905789
Desc. 2:	ALS Sample No.: EP1210463-010	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: TZR	Temp Rec'd (°C):	10.0
Desc. 4:	Date Collected: 13/12/2012	Date Started:	14/12/2012
Analyte	Result Units	Method Reference	Result Date Loc.
Thermotolerant Coliforms	<1 CFU/100mL	M12.2	15/12/2012
Enterococci Count	<1 CFU/100mL	M14	16/12/2012



NATA Corporate Accreditation Number: 2020
Melbourne: Site Microbiology No: 2013, Site Chemistry No: 2856
Sydney: Site Microbiology No: 2759, Site Chemistry No: 2135
Perth: Site Microbiology No: 10635, Site Chemistry No: 5081
Accredited for compliance with ISO/IEC 17025
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The data pertains solely to the analytical and sampling procedure(s) used and the condition and homogeneity of the sample(s) as received. The data therefore may not be representative of the lot or batch or other samples. Consequently the data may not necessarily justify the acceptance or rejection of a lot or batch, a product recall or support legal proceedings. It is the responsibility of the client to provide all information relevant to the analysis requested. The report does not imply that Silliker Australia has been engaged to consult upon the consequences of the analysis and for any action that should be taken as a result of the analysis. This report shall not be reproduced except in full, without the written approval of the laboratory.

SILLIKER AUSTRALIA
PERTH LABORATORY

181 Claisebrook Road
Perth, WA 6000
08-9227-6499 Fax 08-9227-6455

CERTIFICATE OF ANALYSIS

COA No:	PER-50469053-0
Supersedes:	None
COA Date:	16/12/2012
Page 4 of 6	

TO:

Scott James
ALS Environmental
10 Hod Way
Malaga, WA 6090

Received From:	Malaga, WA
Received Date:	14/12/2012
P.O.#:	314787
Location of Test: (except where noted) Perth, WA	

Analytical Results

Desc. 1:	ALS Batch No.: EP1210463	Sample Number:	451905790
Desc. 2:	ALS Sample No.: EP1210463-011	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: TZB	Temp Rec'd (°C):	10.0
Desc. 4:	Date Collected: 13/12/2012	Date Started:	14/12/2012
Analyte	Result Units	Method Reference	Result Date Loc.
Thermotolerant Coliforms	<1 CFU/100mL	M12.2	15/12/2012
Enterococci Count	<1 CFU/100mL	M14	16/12/2012

Desc. 1:	ALS Batch No.: EP1210463	Sample Number:	451905792
Desc. 2:	ALS Sample No.: EP1210463-013	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T04P	Temp Rec'd (°C):	10.0
Desc. 4:	Date Collected: 13/12/2012	Date Started:	14/12/2012
Analyte	Result Units	Method Reference	Result Date Loc.
Thermotolerant Coliforms	<1 CFU/100mL	M12.2	15/12/2012
The presence of high numbers of non-coliform bacteria may have caused an underestimation in the count of Thermotolerant coliforms bacteria			
Enterococci Count	3 est. CFU/100mL	M14	16/12/2012

Desc. 1:	ALS Batch No.: EP1210463	Sample Number:	451905798
Desc. 2:	ALS Sample No.: EP2320463-012	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T03P	Temp Rec'd (°C):	10.0
Desc. 4:	Date Collected: 13/12/2012	Date Started:	14/12/2012
Analyte	Result Units	Method Reference	Result Date Loc.
Thermotolerant Coliforms	<10 CFU/100mL	M12.2	15/12/2012
Enterococci Count	<10 CFU/100mL	M14	16/12/2012



NATA Corporate Accreditation Number: 2020
Melbourne: Site Microbiology No: 2013, Site Chemistry No: 2856
Sydney: Site Microbiology No: 2759, Site Chemistry No: 2135
Perth: Site Microbiology No: 10635, Site Chemistry No: 5081
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SILLIKER AUSTRALIA
PERTH LABORATORY

181 Claisebrook Road
Perth, WA 6000
08-9227-6499 Fax 08-9227-6455

CERTIFICATE OF ANALYSIS

COA No:	PER-50469053-0
Supersedes:	None
COA Date:	16/12/2012
Page 5 of 6	

TO:
Scott James
ALS Environmental
10 Hod Way
Malaga, WA 6090

Received From:	Malaga, WA
Received Date:	14/12/2012
P.O.#:	314787
Location of Test: (except where noted) Perth, WA	

Analytical Results

Desc. 1:	ALS Batch No.: EP1210463	Sample Number:	451905799
Desc. 2:	ALS Sample No.: EP2320463-014	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T05P	Temp Rec'd (°C):	10.0
Desc. 4:	Date Collected: 13/12/2012	Date Started:	14/12/2012

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Thermotolerant Coliforms	30 est.	CFU/100mL	M12.2	16/12/2012	
Enterococci Count	120 est.	CFU/100mL	M14	16/12/2012	

Desc. 1:	ALS Batch No.: EP1210463	Sample Number:	451905800
Desc. 2:	ALS Sample No.: EP2320463-015	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T06P	Temp Rec'd (°C):	10.0
Desc. 4:	Date Collected: 13/12/2012	Date Started:	14/12/2012

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Thermotolerant Coliforms	<10	CFU/100mL	M12.2	15/12/2012	
Enterococci Count	30 est.	CFU/100mL	M14	16/12/2012	

Desc. 1:	ALS Batch No.: EP1210463	Sample Number:	451905802
Desc. 2:	ALS Sample No.: EP2320463-016	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T07P	Temp Rec'd (°C):	10.0
Desc. 4:	Date Collected: 13/12/2012	Date Started:	14/12/2012

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Thermotolerant Coliforms	40 est.	CFU/100mL	M12.2	16/12/2012	
Enterococci Count	30 est.	CFU/100mL	M14	16/12/2012	

Desc. 1:	ALS Batch No.: EP1210463	Sample Number:	451905803
Desc. 2:	ALS Sample No.: EP2320463-017	Condition Rec'd:	NORMAL
Desc. 3:	Sample ID: T08P	Temp Rec'd (°C):	10.0
Desc. 4:	Date Collected: 13/12/2012	Date Started:	14/12/2012

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method Reference</u>	<u>Result Date</u>	<u>Loc.</u>
Thermotolerant Coliforms	20 est.	CFU/100mL	M12.2	16/12/2012	
Enterococci Count	10 est.	CFU/100mL	M14	16/12/2012	



NATA Composite Accreditation Number: 2020
Melbourne: Site Microbiology No: 2013, Site Chemistry No: 2856
Sydney: Site Microbiology No: 2759, Site Chemistry No: 2135
Perth: Site Microbiology No: 10635, Site Chemistry No: 5081
Accredited for compliance with ISO/IEC 17025
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**SILLIKER AUSTRALIA
PERTH LABORATORY**

181 Claisebrook Road
Perth, WA 6000
08-9227-6499 Fax 08-9227-6455

CERTIFICATE OF ANALYSIS

COA No:	PER-50469053-0
Supersedes:	None
COA Date:	16/12/2012
Page 6 of 6	

TO:

Scott James
ALS Environmental
10 Hod Way
Malaga, WA 6090

Received From:	Malaga, WA
Received Date:	14/12/2012
P.O.#:	314787
Location of Test: (except where noted) Perth, WA	

Analytical Results



**JAMES MILLS
LABORATORY DIRECTOR**



*NATA Composite Accreditation Number: 2020
Melbourne: Site Microbiology No: 2013, Site Chemistry No: 2856
Sydney: Site Microbiology No: 2759, Site Chemistry No: 2135
Perth: Site Microbiology No: 10635, Site Chemistry No: 5081
Accredited for compliance with ISO/IEC 17025
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SAMPLE RECEIPT ADVICE

PE073420A

CLIENT DETAILS

Contact Alan Foley
Client RPS Environment and Planning Pty Ltd
Address PO Box 465
SUBIACO WA 6904

Telephone 08 9211 1111
Facsimile 08 9211 1122
Email alan.foley@rpsgroup.com.au

Project **112147 Burswood Stadium**
Order Number **112147**
Samples 1

LABORATORY DETAILS

Manager Ros Ma
Laboratory SGS Newburn Environmental
Address 10 Reid Rd
Newburn WA 6105

Telephone (08) 9373 3500
Facsimile (08) 9373 3556
Email au.environmental.perth@sgs.com

Samples Received Thu 20/12/2012
Report Due Tue 22/1/2013
SGS Reference **PE073420A**

SUBMISSION DETAILS

This is to confirm that 1 sample was received on Thursday 20/12/2012. Results are expected to be ready by Tuesday 22/1/2013. Please quote SGS reference PE073420A when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	1 Water	Type of documentation received	COC
Date documentation received	19/12/2012	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	10.3°C
Sample container provider	ALS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	1

Samples will be held for one month for water samples and two months for soil samples from date of report, unless otherwise instructed.

COMMENTS

Sample TZZ to be subcontracted to SGS Leeder for VOA upon Leeder re-opening in the new year.
TAT is set to 23/1/13 as an estimated 7-10 working day TAT from opening date.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.



SAMPLE RECEIPT ADVICE

PE073420A

CLIENT DETAILS

Client

RPS Environment and Planning Pty Ltd

Project

I12147 Burswood Stadium

SUMMARY OF ANALYSIS

No.	Sample ID	Organic and Volatile Acids (VFA) in Water
001	TZZ	8

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document. The numbers shown in the table indicate the number of results requested in each package. Please indicate as soon as possible should your request differ from these details. Testing as per this table shall commence immediately unless the client intervenes with a correction.

PORE WATER ANALYSIS SUITES

CLIENT:
SITE: Burswood Stadium
PROJECT REF.: I12147
SCIENTIST (S): JA and AJ
SAMPLE TYPE: Pore Water
REPORT TO: Josh Abbott/Alan Foley

Trace metals (Al, As, B, Cd, Cr, Cr(VI), Cu, Fe, Pb, Mg, Mo, Mn, Hg, Ni, Se, Sn, Zn). ICP-MS-ORC

Ultra trace OC/OP Pesticides

TPH/BTEX

VOC

Cyanide

Phenols

Super Ultra trace PAH

Ultra trace PCB's

Nutrients (Total nitrogen, ammonia, nitrate and nitrite as NOx-N, total kjeldahl nitrogen and reactive and total phosphorus)

Carbamates and Herbicides

Volatile Organic Acids

Sulphide

Pathogens (enterococci, thermotolerant coliforms)

Table with columns: SAMPLE ID., DATE, and 15 analytical categories. Row 1 (TZZ) has checkmarks in all 15 categories. Remaining rows are empty.

RPS logo and contact information: 38 Station St Subiaco 6008, Tel: (618) 9382 4744, Fax: (618) 9382 1177

Relinquished by Josh A Organisation RPS
Date 19/12/12 Time 9:00 AM

Received by CL Organisation
Date 19/12/12 Time 12:05

REGISTRATION DETAILS

APPROVED BY: R. MA

Bottle Map	1ℓ Plastic	500mℓ Plastic	100mℓ Plastic	250mℓ Plastic	125mℓ Plastic	1ℓ Amber	500mℓ Amber	100mℓ Amber	40mℓ Amber Vial	500mℓ Plastic	250mℓ Plastic	125mℓ Plastic	250mℓ Glass Jar	125mℓ Glass Jar	Other Lab	Ziplock Bag/ Other	Job Number:
Sample Numbers:	Green	Green	100mℓ Purple	250mℓ Green	125mℓ Red	1ℓ Green	500mℓ Orange	100mℓ Green	40mℓ White	500mℓ Blue	250mℓ Orange	125mℓ Purple Brown	250mℓ Glass Jar	125mℓ Glass Jar		125ml Ziplock	PE 073420
1			2	2	1		R3	2	2	2		1			ALS	1	
																	# of Eskies:
																	1
																	IB / ICE / None
																	Temp: 10.3 °C
																	Tray Numbers:
																	W-205 V-020
																	Mixto Metals -022

Registration comments:

No sampling date available on the labels as well as on the COC.

Action Taken:

Registered By:

DB [Signature]



SAMPLE RECEIPT ADVICE

PE073420

CLIENT DETAILS

Contact Alan Foley
Client RPS Environment and Planning Pty Ltd
Address PO Box 465
SUBIACO WA 6904

Telephone 08 9211 1111
Facsimile 08 9211 1122
Email alan.foley@rpsgroup.com.au

Project **I12147 Burswood Stadium**
Order Number **I12147**
Samples 1

LABORATORY DETAILS

Manager Ros Ma
Laboratory SGS Newburn Environmental
Address 10 Reid Rd
Newburn WA 6105

Telephone (08) 9373 3500
Facsimile (08) 9373 3556
Email au.environmental.perth@sgs.com

Samples Received Wed 19/12/2012
Report Due Fri 4/1/2013
SGS Reference **PE073420**

SUBMISSION DETAILS

This is to confirm that 1 sample was received on Wednesday 19/12/2012. Results are expected to be ready by Friday 4/1/2013. Please quote SGS reference PE073420 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	1 Water	Type of documentation received	COC
Date documentation received	19/12/2012	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	10.3°C
Sample container provider	ALS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	1

Samples will be held for one month for water samples and two months for soil samples from date of report, unless otherwise instructed.

COMMENTS

Sample TZZ to be subcontracted to SGS Leeder for VOA on 20/12/12 DB

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

CLIENT DETAILS

Client	RPS Environment and Planning Pty Ltd	Project	I12147 Burswood Stadium
--------	--------------------------------------	---------	-------------------------

SUMMARY OF ANALYSIS

No.	Sample ID	Filterable Reactive Phosphorus (FRP)	Hexavalent Chromium in water by Discrete Analyser	Low Level Ammonia Nitrogen by FIA	Metals in Water (Dissolved) by ICPOES	Nitrate Nitrogen and Nitrite Nitrogen (NOx) by FIA	Sulphide by Titration in Water	TKN Kjeldahl Digestion by Discrete Analyser	Total Cyanide in water by Discrete Analyser	Total Phosphorus by Kjeldahl Digestion DA in	Trace Metals (Dissolved) in Water by ICPMS
001	TZZ	1	1	1	1	3	1	2	1	1	14

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document. The numbers shown in the table indicate the number of results requested in each package. Please indicate as soon as possible should your request differ from these details. Testing as per this table shall commence immediately unless the client intervenes with a correction.



SAMPLE RECEIPT ADVICE

PE073420

CLIENT DETAILS

Client

RPS Environment and Planning Pty Ltd

Project

I12147 Burswood Stadium

SUMMARY OF ANALYSIS

No.	Sample ID	Low Level OC Pesticides in Water	Low Level OP Pesticides in Water	Low Level PCBs in Water	Mercury (dissolved) in Water	Speciated Phenols in Water	TRH (Total Recoverable Hydrocarbons) in Water	Ultra Low Level OC Pesticides in Water	Ultra Low Level OP Pesticides in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	TZZ	12	9	8	1	15	6	10	2	75	7

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document. The numbers shown in the table indicate the number of results requested in each package. Please indicate as soon as possible should your request differ from these details. Testing as per this table shall commence immediately unless the client intervenes with a correction.

CLIENT DETAILS

Client	RPS Environment and Planning Pty Ltd	Project	I12147 Burswood Stadium
--------	--------------------------------------	---------	-------------------------

SUMMARY OF ANALYSIS

No.	Sample ID	Acid Herbicides in Water	Carbamates in Water	E. coli and Thermotolerant coliforms in Water	Enterococci in Water	Low Level PAH (Poly Aromatic Hydrocarbons) in	Organic and Volatile Acids (VFA) in Water
001	TZZ	20	3	3	3	18	8

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document. The numbers shown in the table indicate the number of results requested in each package. Please indicate as soon as possible should your request differ from these details. Testing as per this table shall commence immediately unless the client intervenes with a correction.



STATEMENT OF QA/QC PERFORMANCE

PE073420 R0

CLIENT DETAILS

Contact Alan Foley
Client RPS Environment and Planning Pty Ltd
Address PO Box 465
SUBIACO WA 6904

Telephone 08 9211 1111
Facsimile 08 9211 1122
Email alan.foley@rpsgroup.com.au

Project **I12147 Burswood Stadium**
Order Number **I12147**
Samples 1

LABORATORY DETAILS

Manager Ros Ma
Laboratory SGS Newburn Environmental
Address 10 Reid Rd
Newburn WA 6105

Telephone (08) 9373 3500
Facsimile (08) 9373 3556
Email au.environmental.perth@sgs.com

SGS Reference PE073420 R0
Report Number 000053044
Date Reported 07 Jan 2013

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS Environmental Services' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client. This QA/QC Statement must be read in conjunction with the referenced Analytical Report. The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Extraction Date	Hexavalent Chromium in water by Discrete Analyser	1 item
	Sulphide by Titration in Water	1 item
Analysis Date	Hexavalent Chromium in water by Discrete Analyser	1 item
	Sulphide by Titration in Water	1 item
	Total Cyanide in water by Discrete Analyser (Aquakem)	1 item

SAMPLE SUMMARY

Sample counts by matrix	1 Water	Type of documentation received	COC
Date documentation received	19/12/2012	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	10.3°C
Sample container provider	ALS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	1

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Acid Herbicides in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB056077	18 Dec 2012	19 Dec 2012	25 Dec 2012	24 Dec 2012	02 Feb 2013	07 Jan 2013

Carbamates in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB056077	18 Dec 2012	19 Dec 2012	25 Dec 2012	24 Dec 2012	02 Feb 2013	07 Jan 2013

Filterable Reactive Phosphorus (FRP)

Method: ME-(AU)-[ENV]AN278

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB056000	18 Dec 2012	19 Dec 2012	15 Jan 2013	21 Dec 2012	15 Jan 2013	21 Dec 2012

Hexavalent Chromium in water by Discrete Analyser

Method: ME-(AU)-[ENV]AN283

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB056074	18 Dec 2012	19 Dec 2012	19 Dec 2012	24 Dec 2012†	19 Dec 2012	27 Dec 2012†

Low Level Ammonia Nitrogen by FIA

Method: ME-(AU)-[ENV]AN261

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB056010	18 Dec 2012	19 Dec 2012	15 Jan 2013	21 Dec 2012	15 Jan 2013	28 Dec 2012

Low Level OC Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB056077	18 Dec 2012	19 Dec 2012	25 Dec 2012	24 Dec 2012	02 Feb 2013	07 Jan 2013

Low Level OP Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB056077	18 Dec 2012	19 Dec 2012	25 Dec 2012	24 Dec 2012	02 Feb 2013	07 Jan 2013

Low Level PAH (Poly Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB056077	18 Dec 2012	19 Dec 2012	25 Dec 2012	24 Dec 2012	02 Feb 2013	07 Jan 2013

Low Level PCBs in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB056077	18 Dec 2012	19 Dec 2012	25 Dec 2012	24 Dec 2012	02 Feb 2013	07 Jan 2013

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB056495	18 Dec 2012	19 Dec 2012	15 Jan 2013	02 Jan 2013	15 Jan 2013	03 Jan 2013

Metals in Water (Dissolved) by ICPOES

Method: ME-(AU)-[ENV]AN320/AN321

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB055855	18 Dec 2012	19 Dec 2012	16 Jun 2013	19 Dec 2012	16 Jun 2013	27 Dec 2012

Nitrate Nitrogen and Nitrite Nitrogen (NOx) by FIA

Method: ME-(AU)-[ENV]AN258

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB056010	18 Dec 2012	19 Dec 2012	15 Jan 2013	21 Dec 2012	15 Jan 2013	28 Dec 2012

Speciated Phenols in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB056077	18 Dec 2012	19 Dec 2012	08 Jan 2013	24 Dec 2012	02 Feb 2013	07 Jan 2013

Sulphide by Titration in Water

Method: ME-(AU)-[ENV]AN149

Sample Name	Sample No.	QC Ref
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SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Sulphide by Titration in Water (continued)

Method: ME-(AU)-[ENV]AN149

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB056407	18 Dec 2012	19 Dec 2012	25 Dec 2012	31 Dec 2012†	25 Dec 2012	31 Dec 2012†

TKN Kjeldahl Digestion by Discrete Analyser

Method: ME-(AU)-[ENV]AN281

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB055943	18 Dec 2012	19 Dec 2012	15 Jan 2013	20 Dec 2012	15 Jan 2013	21 Dec 2012

Total Cyanide in water by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN278

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB056413	18 Dec 2012	19 Dec 2012	01 Jan 2013	31 Dec 2012	01 Jan 2013	04 Jan 2013†

Total Phosphorus by Kjeldahl Digestion DA in Water

Method: ME-(AU)-[ENV]AN279/AN293

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB055943	18 Dec 2012	19 Dec 2012	15 Jan 2013	20 Dec 2012	15 Jan 2013	21 Dec 2012

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB055853	18 Dec 2012	19 Dec 2012	16 Jun 2013	19 Dec 2012	16 Jun 2013	21 Dec 2012

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB056077	18 Dec 2012	19 Dec 2012	25 Dec 2012	24 Dec 2012	02 Feb 2013	07 Jan 2013

Ultra Low Level OC Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB056077	18 Dec 2012	19 Dec 2012	25 Dec 2012	24 Dec 2012	02 Feb 2013	03 Jan 2013

Ultra Low Level OP Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB056077	18 Dec 2012	19 Dec 2012	25 Dec 2012	24 Dec 2012	02 Feb 2013	07 Jan 2013

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB055901	18 Dec 2012	19 Dec 2012	25 Dec 2012	20 Dec 2012	29 Jan 2013	28 Dec 2012

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TZZ	PE073420.001	LB055901	18 Dec 2012	19 Dec 2012	25 Dec 2012	20 Dec 2012	29 Jan 2013	28 Dec 2012

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Acid Herbicides in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4-DCPAA (Surrogate)	TZZ	PE073420.001	%	40 - 130%	70

Carbamates in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	TZZ	PE073420.001	%	40 - 130%	92

Low Level OC Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	TZZ	PE073420.001	%	40 - 130%	53

Low Level OP Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	TZZ	PE073420.001	%	40 - 130%	53

Low Level PAH (Poly Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	TZZ	PE073420.001	%	40 - 130%	53

Low Level PCBs in Water

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	TZZ	PE073420.001	%	40 - 130%	53

Speciated Phenols in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4,6-Tribromophenol (Surrogate)	TZZ	PE073420.001	%	40 - 130%	92

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TZZ	PE073420.001	%	60 - 130%	98
d4-1,2-dichloroethane (Surrogate)	TZZ	PE073420.001	%	40 - 130%	98
d8-toluene (Surrogate)	TZZ	PE073420.001	%	60 - 130%	107
Dibromofluoromethane (Surrogate)	TZZ	PE073420.001	%	60 - 130%	98

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TZZ	PE073420.001	%	60 - 130%	98
d4-1,2-dichloroethane (Surrogate)	TZZ	PE073420.001	%	60 - 130%	98
d8-toluene (Surrogate)	TZZ	PE073420.001	%	60 - 130%	107
Dibromofluoromethane (Surrogate)	TZZ	PE073420.001	%	60 - 130%	98

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Acid Herbicides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB056077.001	Clopyralid	µg/L	0.5	<0.5
	4-chlorophenoxy acetic acid (4-CPA)	µg/L	1	<1
	Dicamba	µg/L	0.5	<0.5
	MCPPP (Mecoprop)	µg/L	0.5	<0.5
	MCPA	µg/L	0.5	<0.5
	2,6-D	µg/L	0.5	<0.5
	Dichlorprop (2,4-DP)	µg/L	0.5	<0.5
	2,4-D	µg/L	0.5	<0.5
	Bromoxynil	µg/L	0.5	<0.5
	Triclopyr	µg/L	0.5	<0.5
	2,4,6-T	µg/L	0.5	<0.5
	2,4,5-TP (Silvex, Fenopop)	µg/L	0.5	<0.5
	2,4,5-T	µg/L	0.5	<0.5
	MCPB	µg/L	1	<1
	Dinoseb (Dinitrobutylphenol)	µg/L	0.5	<0.5
	Fluroxypyr	µg/L	0.5	<0.5
	2,4-DB	µg/L	0.5	<0.5
	loxynil	µg/L	1	<1
Picloram	µg/L	1	<1	

Carbamates in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	
LB056077.001	Carbamates	Carbofuran	µg/L	0.5	<0.5
		Carbaryl	µg/L	0.5	<0.5
	Surrogates	d14-p-terphenyl (Surrogate)	%	-	87

Filterable Reactive Phosphorus (FRP)

Method: ME-(AU)-[ENV]AN278

Sample Number	Parameter	Units	LOR	Result
LB056000.001	Filterable Reactive Phosphorus	mg/L	0.005	<0.005
LB056000.026	Filterable Reactive Phosphorus	mg/L	0.005	<0.005

Hexavalent Chromium in water by Discrete Analyser

Method: ME-(AU)-[ENV]AN283

Sample Number	Parameter	Units	LOR	Result
LB056074.001	Hexavalent Chromium, Cr6+	mg/L	0.002	<0.002
LB056074.024	Hexavalent Chromium, Cr6+	mg/L	0.002	<0.002

Low Level Ammonia Nitrogen by FIA

Method: ME-(AU)-[ENV]AN261

Sample Number	Parameter	Units	LOR	Result
LB056010.001	Ammonia Nitrogen, NH ₃ as N	mg/L	0.005	<0.005
LB056010.024	Ammonia Nitrogen, NH ₃ as N	mg/L	0.005	<0.005
LB056010.047	Ammonia Nitrogen, NH ₃ as N	mg/L	0.005	<0.005

Low Level OC Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	
LB056077.001	Lindane (gamma BHC)	µg/L	0.05	<0.05	
	Aldrin	µg/L	0.01	<0.01	
	p,p'-DDE	µg/L	0.01	<0.01	
	p,p'-DDD	µg/L	0.01	<0.01	
	Methoxychlor	µg/L	0.1	<0.1	
	Hexachlorobenzene	µg/L	0.01	<0.01	
	Alpha BHC	µg/L	0.05	<0.05	
	Beta BHC	µg/L	0.05	<0.05	
	Delta BHC	µg/L	0.05	<0.05	
	Endrin Ketone	µg/L	0.05	<0.05	
	Heptachlor epoxide	µg/L	0.02	<0.02	
	Surrogates	d14-p-terphenyl (Surrogate)	%	-	87

Low Level OP Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result
LB056077.001	Azinphos-methyl (Guthion)	µg/L	0.05	<0.05
	Bromophos Ethyl	µg/L	0.05	<0.05
	Diazinon (Dimpylate)	µg/L	0.01	<0.01

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level OP Pesticides in Water (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result
LB056077.001	Dichlorvos	µg/L	0.5	<0.5
	Ethion	µg/L	0.05	<0.05
	Fenitrothion	µg/L	0.2	<0.2
	Malathion	µg/L	0.05	<0.05
	Methidathion	µg/L	0.05	<0.05
Surrogates	d14-p-terphenyl (Surrogate)	%	-	87

Low Level PAH (Poly Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB056077.001	Naphthalene	µg/L	0.02	<0.02
	2-methylnaphthalene	µg/L	0.01	<0.01
	1-methylnaphthalene	µg/L	0.01	<0.01
	Acenaphthylene	µg/L	0.01	<0.01
	Acenaphthene	µg/L	0.01	<0.01
	Fluorene	µg/L	0.01	<0.01
	Phenanthrene	µg/L	0.01	<0.01
	Anthracene	µg/L	0.01	<0.01
	Fluoranthene	µg/L	0.01	<0.01
	Pyrene	µg/L	0.01	<0.01
	Benzo(a)anthracene	µg/L	0.01	<0.01
	Chrysene	µg/L	0.01	<0.01
	Benzo(b&k)fluoranthene	µg/L	0.02	<0.02
	Benzo(a)pyrene	µg/L	0.01	<0.01
	Indeno(1,2,3-cd)pyrene	µg/L	0.01	<0.01
	Dibenzo(a&h)anthracene	µg/L	0.01	<0.01
	Benzo(ghi)perylene	µg/L	0.01	<0.01
Surrogates	d14-p-terphenyl (Surrogate)	%	-	87

Low Level PCBs in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result
LB056077.001	PCB Congener C28	µg/L	0.02	<0.02
	PCB Congener C52	µg/L	0.01	<0.01
	PCB Congener C101	µg/L	0.004	<0.004
	PCB Congener C118	µg/L	0.004	<0.004
	PCB Congener C138	µg/L	0.004	<0.004
	PCB Congener C153	µg/L	0.004	<0.004
	PCB Congener C180	µg/L	0.004	<0.004
Surrogates	d14-p-terphenyl (Surrogate)	%	-	87

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Number	Parameter	Units	LOR	Result
LB056495.001	Mercury	mg/L	0.00005	<0.00005

Metals in Water (Dissolved) by ICPOES

Method: ME-(AU)-[ENV]AN320/AN321

Sample Number	Parameter	Units	LOR	Result
LB055855.001	Magnesium, Mg	mg/L	0.1	<0.1

Nitrate Nitrogen and Nitrite Nitrogen (NOx) by FIA

Method: ME-(AU)-[ENV]AN258

Sample Number	Parameter	Units	LOR	Result
LB056010.001	Nitrate/Nitrite Nitrogen, NOx as N	mg/L	0.005	<0.005
	Nitrite Nitrogen, NO ₂ as N	mg/L	0.005	<0.005
LB056010.024	Nitrate/Nitrite Nitrogen, NOx as N	mg/L	0.005	<0.005
	Nitrite Nitrogen, NO ₂ as N	mg/L	0.005	<0.005
LB056010.047	Nitrate/Nitrite Nitrogen, NOx as N	mg/L	0.005	<0.005
	Nitrite Nitrogen, NO ₂ as N	mg/L	0.005	<0.005

Speciated Phenols in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR
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Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Speciated Phenols in Water (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB056077.001	Phenol	µg/L	0.5	<0.5
	2-methyl phenol (o-cresol)	µg/L	0.5	<0.5
	3/4-methyl phenol (m/p-cresol)	µg/L	1	<1
	2-chlorophenol	µg/L	0.5	<0.5
	2,4-dimethyl phenol	µg/L	0.5	<0.5
	2,6-dichlorophenol	µg/L	0.5	<0.5
	2,4-dichlorophenol	µg/L	0.5	<0.5
	2,4,6-trichlorophenol	µg/L	0.5	<0.5
	2-nitrophenol	µg/L	0.5	<0.5
	4-nitrophenol	µg/L	1	<1
	2,4,5-trichlorophenol	µg/L	0.5	<0.5
	Pentachlorophenol	µg/L	0.5	<0.5
	2,4-dinitrophenol	µg/L	2	<2
Surrogates	2,4,6-Tribromophenol (Surrogate)	%	-	86

Sulphide by Titration in Water

Method: ME-(AU)-[ENV]AN149

Sample Number	Parameter	Units	LOR	Result
LB056407.001	Sulphide	mg/L	0.5	<0.5
LB056407.030	Sulphide	mg/L	0.5	<0.5

TKN Kjeldahl Digestion by Discrete Analyser

Method: ME-(AU)-[ENV]AN281

Sample Number	Parameter	Units	LOR	Result
LB055943.001	Total Kjeldahl Nitrogen	mg/L	0.05	<0.05

Total Cyanide in water by Discrete Analyser (Aquamem)

Method: ME-(AU)-[ENV]AN077/AN287

Sample Number	Parameter	Units	LOR	Result
LB056413.001	Total Cyanide	mg/L	0.004	<0.004
LB056413.026	Total Cyanide	mg/L	0.004	<0.004

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB055853.001	Aluminium, Al	µg/L	1	<1
	Arsenic, As	µg/L	1	<1
	Boron, B	µg/L	5	<5
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Iron, Fe	µg/L	5	<5
	Lead, Pb	µg/L	1	<1
	Manganese, Mn	µg/L	1	<1
	Molybdenum, Mo	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Selenium, Se	µg/L	2	<2
	Tin, Sn	µg/L	1	<1
	Zinc, Zn	µg/L	1	<1

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB056077.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200

Ultra Low Level OC Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result
LB056077.001	Heptachlor	µg/L	0.01	<0.00
	Gamma Chlordane	µg/L	0.002	<0.002
	Alpha Chlordane	µg/L	0.002	<0.002
	Alpha Endosulfan	µg/L	0.005	<0.005
	Dieldrin	µg/L	0.002	<0.002
	Endrin	µg/L	0.004	<0.004

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Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Ultra Low Level OC Pesticides in Water (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result
LB056077.001	Beta Endosulfan	µg/L	0.005	<0.005
	Endosulfan Sulphate	µg/L	0.005	<0.005
	p,p'-DDT	µg/L	0.002	<0.001

Ultra Low Level OP Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result
LB056077.001	Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.009	<0.009
	Parathion-ethyl (Parathion)	µg/L	0.004	<0.004

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number	Parameter	Units	LOR	Result	
LB055901.001	Fumigants	2,2-dichloropropane	µg/L	0.5	<0.5
		1,2-dichloropropane	µg/L	0.5	<0.5
		cis-1,3-dichloropropene	µg/L	0.5	<0.5
		trans-1,3-dichloropropene	µg/L	0.5	<0.5
		1,2-dibromoethane (EDB)	µg/L	0.5	<0.5
	Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	µg/L	5	<5
		Chloromethane	µg/L	5	<5
		Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3
		Bromomethane	µg/L	10	<10
		Chloroethane	µg/L	5	<5
		Trichlorofluoromethane	µg/L	1	<1
		Iodomethane	µg/L	5	<5
		1,1-dichloroethene	µg/L	0.5	<0.5
		Dichloromethane (Methylene chloride)	µg/L	5	<5
		Allyl chloride	µg/L	0.5	<2.0
		trans-1,2-dichloroethene	µg/L	0.5	<0.5
		1,1-dichloroethane	µg/L	0.5	<0.5
		cis-1,2-dichloroethene	µg/L	0.5	<0.5
		Bromochloromethane	µg/L	0.5	<0.5
		1,2-dichloroethane	µg/L	0.5	<0.5
		1,1-dichloropropene	µg/L	0.5	<0.5
		Carbon tetrachloride	µg/L	0.5	<0.5
		Dibromomethane	µg/L	0.5	<0.5
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5
		1,1,2-trichloroethane	µg/L	0.5	<0.5
		1,3-dichloropropane	µg/L	0.5	<0.5
		Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5
		1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5
		cis-1,4-dichloro-2-butene	µg/L	1	<1
		1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5
	1,2,3-trichloropropane	µg/L	0.5	<0.5	
	trans-1,4-dichloro-2-butene	µg/L	1	<1	
	1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	
Halogenated Aromatics	Hexachlorobutadiene	µg/L	1	<1	
	Chlorobenzene	µg/L	0.5	<0.5	
	Bromobenzene	µg/L	0.5	<0.5	
	2-chlorotoluene	µg/L	0.5	<0.5	
	4-chlorotoluene	µg/L	0.5	<0.5	
	1,3-dichlorobenzene	µg/L	0.5	<0.5	
	1,4-dichlorobenzene	µg/L	0.3	<0.3	
	1,2-dichlorobenzene	µg/L	0.5	<0.5	
	1,2,4-trichlorobenzene	µg/L	0.5	<0.5	
Monocyclic Aromatic Hydrocarbons	1,2,3-trichlorobenzene	µg/L	0.5	<0.5	
	Benzene	µg/L	0.5	<0.5	
	Toluene	µg/L	0.5	<0.5	
	Ethylbenzene	µg/L	0.5	<0.5	
	m/p-xylene	µg/L	1	<1	
	o-xylene	µg/L	0.5	<0.5	
Styrene (Vinyl benzene)	µg/L	0.5	<0.5		
Isopropylbenzene (Cumene)	µg/L	0.5	<0.5		

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VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number	Parameter	Units	LOR	Result	
LB055901.001	Monocyclic Aromatic Hydrocarbons	n-propylbenzene	µg/L	0.5	<0.5
		1,3,5-trimethylbenzene	µg/L	0.5	<0.5
	Hydrocarbons	tert-butylbenzene	µg/L	0.5	<0.5
		1,2,4-trimethylbenzene	µg/L	0.5	<0.5
		sec-butylbenzene	µg/L	0.5	<0.5
		p-isopropyltoluene	µg/L	0.5	<0.5
		n-butylbenzene	µg/L	0.5	<0.5
		Nitrogenous Compounds	Acrylonitrile	µg/L	0.5
	Oxygenated Compounds	Acetone (2-propanone)	µg/L	10	<10
		MtBE (Methyl-tert-butyl ether)	µg/L	2	<1
		Vinyl acetate	µg/L	10	<10
		MEK (2-butanone)	µg/L	10	<10
		MIBK (4-methyl-2-pentanone)	µg/L	5	<5
	Polycyclic VOCs	2-hexanone (MBK)	µg/L	5	<5
		Naphthalene	µg/L	0.5	<0.5
	Sulphonated	Carbon disulfide	µg/L	0.5	<2.0
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	115
		d4-1,2-dichloroethane (Surrogate)	%	-	117
		d8-toluene (Surrogate)	%	-	91
		Bromofluorobenzene (Surrogate)	%	-	78
	Trihalomethanes	Chloroform (THM)	µg/L	0.5	<0.5
		Bromodichloromethane (THM)	µg/L	0.5	<0.5
		Dibromochloromethane (THM)	µg/L	0.5	<0.5
Bromoform (THM)		µg/L	0.5	<0.5	

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number	Parameter	Units	LOR	Result	
LB055901.001	TRH C6-C9	µg/L	40	<40	
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	115
		d4-1,2-dichloroethane (Surrogate)	%	-	117
		d8-toluene (Surrogate)	%	-	91
		Bromofluorobenzene (Surrogate)	%	-	78

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Filterable Reactive Phosphorus (FRP)

Method: ME-(AU)-[ENV]AN278

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073426.008	LB056000.029	Filterable Reactive Phosphorus	mg/L	0.005	10	10	15	2

Hexavalent Chromium in water by Discrete Analyser

Method: ME-(AU)-[ENV]AN283

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073366.033	LB056074.028	Hexavalent Chromium, Cr6+	mg/L	0.002	0	0	200	0
PE073398.021	LB056074.035	Hexavalent Chromium, Cr6+	mg/L	0.002	0	0	200	0
PE073510.001	LB056074.014	Hexavalent Chromium, Cr6+	mg/L	0.002	0.03978	0.03936	20	1

Low Level Ammonia Nitrogen by FIA

Method: ME-(AU)-[ENV]AN281

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073366.022	LB056010.026	Ammonia Nitrogen, NH ₃ as N	mg/L	0.005	0	0	200	0
PE073420.001	LB056010.037	Ammonia Nitrogen, NH ₃ as N	mg/L	0.005	0.72	0.78	16	9
PE073426.010	LB056010.013	Ammonia Nitrogen, NH ₃ as N	mg/L	0.005	2.1	2.1	15	1
PE073458.003	LB056010.050	Ammonia Nitrogen, NH ₃ as N	mg/L	0.005	6.2	6.3	15	1

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073420.001	LB056495.020	Mercury	µg/L	0.00005	<0.00005	<0.00005	200	0
PE073528.001	LB056495.014	Mercury	µg/L	0.00005	<0.00005	<0.00005	200	0

Metals in Water (Dissolved) by ICPOES

Method: ME-(AU)-[ENV]AN320/AN321

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073411.003	LB055855.014	Magnesium, Mg	mg/L	0.1	120	120	15	0
PE073420.001	LB055855.022	Magnesium, Mg	mg/L	0.1	900	900	15	0

Nitrate Nitrogen and Nitrite Nitrogen (NOx) by FIA

Method: ME-(AU)-[ENV]AN258

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE072685B.001	LB056010.061	Nitrate/Nitrite Nitrogen, NOx as N	mg/L	0.005	0.244	0.245	17	0
		Nitrite Nitrogen, NO ₂ as N	mg/L	0.005	0	0	200	0
PE072685B.002	LB056010.063	Nitrate/Nitrite Nitrogen, NOx as N	mg/L	0.005	0.027	0.021	36	25
		Nitrite Nitrogen, NO ₂ as N	mg/L	0.005	0	0	200	0
PE073366.022	LB056010.026	Nitrate/Nitrite Nitrogen, NOx as N	mg/L	0.005	15.16	14.922	15	2
		Nitrite Nitrogen, NO ₂ as N	mg/L	0.005	0.068	0.065	23	5
PE073420.001	LB056010.037	Nitrate/Nitrite Nitrogen, NOx as N	mg/L	0.005	0.023	0.031	34	30
		Nitrite Nitrogen, NO ₂ as N	mg/L	0.005	<0.005	<0.005	200	0
PE073426.010	LB056010.013	Nitrate/Nitrite Nitrogen, NOx as N	mg/L	0.005	1.578	1.587	15	1
		Nitrite Nitrogen, NO ₂ as N	mg/L	0.005	0.18	0.19	18	4

TKN Kjeldahl Digestion by Discrete Analyser

Method: ME-(AU)-[ENV]AN281

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073451.001	LB055943.007	Total Kjeldahl Nitrogen	mg/L	0.05	61.65	60.1825	15	2
		Total Nitrogen (calc)	mg/L	0.05	62	60	10	2

Total Cyanide in water by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073527.002	LB056413.015	Total Cyanide	mg/L	0.004	<0.004	<0.004	200	0
PE073561.003	LB056413.029	Total Cyanide	mg/L	0.004	<0.004	<0.004	200	0
PE073563.004	LB056413.041	Total Cyanide	mg/L	0.004	<0.004	<0.004	200	0
PE073591.004	LB056413.045	Total Cyanide	mg/L	0.004	0.0015	0.0016	200	0

Total Phosphorus by Kjeldahl Digestion DA in Water

Method: ME-(AU)-[ENV]AN279/AN293

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073451.001	LB055943.007	Total Phosphorus (Kjeldahl Digestion)	mg/L	0.01	11	11	15	2

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR
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Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Trace Metals (Dissolved) in Water by ICPMS (continued)

Method: ME-(AU)-ENVJAN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
PE073307.001	LB055853.014	Aluminium, Al	µg/L	1	3	3	48	10
		Arsenic, As	µg/L	1	<1	<1	200	0
		Boron, B	µg/L	5	220	220	17	2
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
		Copper, Cu	µg/L	1	<1	<1	200	0
		Iron, Fe	µg/L	5	<5	<5	200	0
		Lead, Pb	µg/L	1	<1	<1	143	0
		Manganese, Mn	µg/L	1	<1	<1	200	0
		Molybdenum, Mo	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	14	14	22	1
		Selenium, Se	µg/L	2	<2	<2	194	0
		Tin, Sn	µg/L	1	<1	<1	200	0
		Zinc, Zn	µg/L	1	350	350	15	0
PE073420.001	LB055853.016	Aluminium, Al	µg/L	1	530	520	15	3
		Arsenic, As	µg/L	1	<10	<10	47	0
		Boron, B	µg/L	5	2900	2900	15	1
		Cadmium, Cd	µg/L	0.1	<1.0	<1.0	28	0
		Chromium, Cr	µg/L	1	<10	<10	200	0
		Copper, Cu	µg/L	1	<10	<10	56	0
		Iron, Fe	µg/L	5	1400	1400	15	0
		Lead, Pb	µg/L	1	<10	<10	200	0
		Manganese, Mn	µg/L	1	130	130	16	1
		Molybdenum, Mo	µg/L	1	<10	<10	29	0
		Nickel, Ni	µg/L	1	<10	<10	46	0
		Selenium, Se	µg/L	2	<20	<20	31	0
		Tin, Sn	µg/L	1	<10	<10	200	0
Zinc, Zn	µg/L	1	43	41	17	4		

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Acid Herbicides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056077.002	MCCPP (Mecoprop)	µg/L	0.5	1.8	2.5	50 - 150	73
	2,4-D	µg/L	0.5	1.5	2.5	50 - 150	61
	2,4,5-TP (Silvex, Fenopop)	µg/L	0.5	1.7	2.5	50 - 150	68
	2,4,5-T	µg/L	0.5	1.7	2.5	50 - 150	66

Carbamates in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056077.002	Carbamates Carbofuran	µg/L	0.5	0.7	1.25	50 - 150	54

Filterable Reactive Phosphorus (FRP)

Method: ME-(AU)-[ENV]AN278

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056000.002	Filterable Reactive Phosphorus	mg/L	0.005	0.054	0.05	80 - 120	107
LB056000.027	Filterable Reactive Phosphorus	mg/L	0.005	0.053	0.05	80 - 120	106

Hexavalent Chromium in water by Discrete Analyser

Method: ME-(AU)-[ENV]AN283

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056074.002	Hexavalent Chromium, Cr6+	mg/L	0.002	0.10	0.1	80 - 120	104
LB056074.025	Hexavalent Chromium, Cr6+	mg/L	0.002	0.10	0.1	80 - 120	105

Low Level Ammonia Nitrogen by FIA

Method: ME-(AU)-[ENV]AN261

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056010.002	Ammonia Nitrogen, NH ₃ as N	mg/L	0.005	0.83	0.8	85 - 115	104
LB056010.025	Ammonia Nitrogen, NH ₃ as N	mg/L	0.005	0.83	0.8	85 - 115	104
LB056010.048	Ammonia Nitrogen, NH ₃ as N	mg/L	0.005	0.83	0.8	85 - 115	103

Low Level OC Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056077.002	Lindane (gamma BHC)	µg/L	0.05	0.10	0.125	50 - 150	81
	Aldrin	µg/L	0.01	0.14	0.125	50 - 150	115
	p,p'-DDE	µg/L	0.01	0.17	0.125	50 - 150	138
	Hexachlorobenzene	µg/L	0.01	0.13	0.125	50 - 150	106

Low Level OP Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056077.002	Diazinon (Dimpylate)	µg/L	0.01	0.10	0.125	50 - 150	76
	Methidathion	µg/L	0.05	0.07	0.125	50 - 150	57

Low Level PAH (Poly Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056077.002	Naphthalene	µg/L	0.02	0.14	0.125	40 - 160	115
	Fluorene	µg/L	0.01	0.12	0.125	40 - 160	97
	Phenanthrene	µg/L	0.01	0.11	0.125	40 - 160	86
	Pyrene	µg/L	0.01	0.11	0.125	40 - 160	91
	Benzo(a)anthracene	µg/L	0.01	0.12	0.125	40 - 160	99
	Benzo(a)pyrene	µg/L	0.01	0.18	0.125	40 - 160	144

Low Level PCBs in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056077.002	PCB Congener C180	µg/L	0.004	0.064	0.125	50 - 150	51

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056495.002	Mercury	mg/L	0.00005	0.0024	2.5	80 - 120	95

Metals in Water (Dissolved) by ICPOES

Method: ME-(AU)-[ENV]AN320/AN321

Sample Number	Parameter	Units	LOR
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Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Metals in Water (Dissolved) by ICPOES (continued)

Method: ME-(AU)-[ENV]AN320/AN321

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB055855.002	Magnesium, Mg	mg/L	0.1	200	200	80 - 120	102

Nitrate Nitrogen and Nitrite Nitrogen (NOx) by FIA

Method: ME-(AU)-[ENV]AN258

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056010.002	Nitrate/Nitrite Nitrogen, NOx as N	mg/L	0.005	0.76	0.8	85 - 115	95
	Nitrite Nitrogen, NO ₂ as N	mg/L	0.005	0.85	0.8	85 - 115	106
LB056010.025	Nitrate/Nitrite Nitrogen, NOx as N	mg/L	0.005	0.77	0.8	85 - 115	96
	Nitrite Nitrogen, NO ₂ as N	mg/L	0.005	0.85	0.8	85 - 115	106
LB056010.048	Nitrate/Nitrite Nitrogen, NOx as N	mg/L	0.005	0.85	0.8	85 - 115	106
	Nitrite Nitrogen, NO ₂ as N	mg/L	0.005	0.77	0.8	85 - 115	96

Speciated Phenols in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056077.002	Phenol	µg/L	0.5	1.6	2.5	20 - 130	63
	2-methyl phenol (o-cresol)	µg/L	0.5	2.5	2.5	50 - 150	99
	2,6-dichlorophenol	µg/L	0.5	1.4	2.5	50 - 150	54
	2,4-dichlorophenol	µg/L	0.5	1.8	2.5	50 - 150	72
	2,4,6-trichlorophenol	µg/L	0.5	1.5	2.5	50 - 150	58
	Pentachlorophenol	µg/L	0.5	2.6	2.5	50 - 150	102

Sulphide by Titration in Water

Method: ME-(AU)-[ENV]AN149

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056407.002	Sulphide	mg/L	0.5	0.9	1	80 - 120	86
LB056407.031	Sulphide	mg/L	0.5	0.9	1	80 - 120	86

TKN Kjeldahl Digestion by Discrete Analyser

Method: ME-(AU)-[ENV]AN281

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB055943.002	Total Kjeldahl Nitrogen	mg/L	0.05	1.1	1	80 - 120	106

Total Cyanide in water by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN077/AN287

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056413.002	Total Cyanide	mg/L	0.004	0.18	0.2	80 - 120	91
LB056413.027	Total Cyanide	mg/L	0.004	0.18	0.2	80 - 120	91

Total Phosphorus by Kjeldahl Digestion DA in Water

Method: ME-(AU)-[ENV]AN279/AN293

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB055943.002	Total Phosphorus (Kjeldahl Digestion)	mg/L	0.01	0.49	0.5	80 - 120	99

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB055853.002	Aluminium, Al	µg/L	1	12	10	80 - 120	116
	Arsenic, As	µg/L	1	10	10	80 - 120	104
	Boron, B	µg/L	5	9	10	80 - 120	91
	Cadmium, Cd	µg/L	0.1	10	10	80 - 120	102
	Chromium, Cr	µg/L	1	10	10	80 - 120	105
	Copper, Cu	µg/L	1	11	10	80 - 120	106
	Iron, Fe	µg/L	5	12	10	80 - 120	118
	Lead, Pb	µg/L	1	11	10	80 - 120	106
	Manganese, Mn	µg/L	1	10	10	80 - 120	104
	Molybdenum, Mo	µg/L	1	10	10	80 - 120	100
	Nickel, Ni	µg/L	1	10	10	80 - 120	104
	Selenium, Se	µg/L	2	11	10	80 - 120	106
	Tin, Sn	µg/L	1	10	10	80 - 120	97
	Zinc, Zn	µg/L	1	11	10	80 - 120	106

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR
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Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Water (continued)

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056077.002	TRH C10-C14	µg/L	50	470	500	60 - 130	94
	TRH C15-C28	µg/L	200	480	500	60 - 130	96
	TRH C29-C36	µg/L	200	460	500	60 - 130	92

Ultra Low Level OC Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056077.002	Heptachlor	µg/L	0.01	0.10	0.125	50 - 150	78
	Gamma Chlordane	µg/L	0.002	0.14	0.125	50 - 150	110
	Dieldrin	µg/L	0.002	0.13	0.125	50 - 150	100
	Endrin	µg/L	0.004	0.11	0.125	50 - 150	84

Ultra Low Level OP Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB056077.002	Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.009	0.073	0.125	50 - 150	58
	Parathion-ethyl (Parathion)	µg/L	0.004	0.088	0.125	50 - 150	70

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB055901.002	Fumigants	1,2-dichloropropane	µg/L	0.5	4.8	5	50 - 150	95
		cis-1,3-dichloropropene	µg/L	0.5	4.6	5	50 - 150	92
		trans-1,3-dichloropropene	µg/L	0.5	4.6	5	50 - 150	93
	Halogenated	1,1-dichloroethene	µg/L	0.5	3.9	5	50 - 150	78
		Aliphatics	trans-1,2-dichloroethene	µg/L	0.5	4.4	5	50 - 150
	1,1-dichloroethane		µg/L	0.5	4.7	5	50 - 150	93
	1,2-dichloroethane		µg/L	0.5	4.6	5	50 - 150	92
	Carbon tetrachloride		µg/L	0.5	4.7	5	50 - 150	94
	Trichloroethene (Trichloroethylene,TCE)		µg/L	0.5	5.0	5	50 - 150	100
	1,1,2-trichloroethane		µg/L	0.5	4.7	5	50 - 150	93
	1,1,2,2-tetrachloroethane		µg/L	0.5	4.8	5	50 - 150	96
	Halogenated	Chlorobenzene	µg/L	0.5	5.0	5	50 - 150	100
	Aromatics	1,3-dichlorobenzene	µg/L	0.5	4.2	5	50 - 150	84
		1,4-dichlorobenzene	µg/L	0.3	5.1	5	50 - 150	101
		1,2-dichlorobenzene	µg/L	0.5	4.8	5	50 - 150	96
	Monocyclic	Benzene	µg/L	0.5	4.6	5	50 - 150	93
	Aromatic	Toluene	µg/L	0.5	4.8	5	50 - 150	97
		Ethylbenzene	µg/L	0.5	5.0	5	50 - 150	100
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.1	5	60 - 130	101
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.3	5	60 - 130	106
		d8-toluene (Surrogate)	µg/L	-	5.3	5	60 - 130	106
		Bromofluorobenzene (Surrogate)	µg/L	-	5.3	5	60 - 130	107
		Trihalomethanes	Chloroform (THM)	µg/L	0.5	4.8	5	50 - 150
	Bromodichloromethane (THM)		µg/L	0.5	4.6	5	50 - 150	92
	Dibromochloromethane (THM)		µg/L	0.5	4.4	5	70 - 130	87
	Bromoform (THM)		µg/L	0.5	4.7	5	50 - 150	94

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB055901.002	TRH C6-C9	µg/L	40	<40	30	70 - 130	104	
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.1	5	60 - 130	101
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.3	5	60 - 130	106
		d8-toluene (Surrogate)	µg/L	-	5.3	5	60 - 130	106
		Bromofluorobenzene (Surrogate)	µg/L	-	5.3	5	60 - 130	107

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Filterable Reactive Phosphorus (FRP)

Method: ME-(AU)-[ENV]AN278

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
PE068029H26.	LB056000.004	Filterable Reactive Phosphorus	mg/L	0.005	0.061	<0.005	0.05	118
PE068112H72.	LB056000.011	Filterable Reactive Phosphorus	mg/L	0.005	0.064	<0.005	0.05	127

Hexavalent Chromium in water by Discrete Analyser

Method: ME-(AU)-[ENV]AN283

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
PE073442.002	LB056074.034	Hexavalent Chromium, Cr6+	mg/L	0.002	0.096	<0.002	0.1	96

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
PE073527.001	LB056495.004	Mercury	mg/L	0.00005	0.0017	<0.00005	0.0025	85

Total Cyanide in water by Discrete Analyser (AquaKem)

Method: ME-(AU)-[ENV]AN077/AN287

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
PE073494.001	LB056413.004	Total Cyanide	mg/L	0.004	0.18	<0.004	0.2	91
PE073562.001	LB056413.031	Total Cyanide	mg/L	0.004	0.18	<0.004	0.2	90

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
PE073393.001	LB055853.004	Arsenic, As	µg/L	1	11	<1	10	104
		Cadmium, Cd	µg/L	0.1	10	<0.1	10	101
		Chromium, Cr	µg/L	1	11	1	10	100
		Copper, Cu	µg/L	1	57	47	10	95
		Lead, Pb	µg/L	1	17	7	10	105
		Nickel, Ni	µg/L	1	10	<1	10	100
		Zinc, Zn	µg/L	1	67	58	10	96

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here:
<http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-11.pdf>

- * Non-accredited analysis.
- Sample not analysed for this analyte.
- ^ Analysis performed by external laboratory.

- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.

- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Low surrogate recovery due to the sample emulsifying during extraction.
- † Refer to Analytical Report comments for further information.

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Project **I12147 Burswood Stadium**
 Order Number **I12147**
 Samples 1

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SGS Reference **PE073420 R0**
 Report Number 0000053043
 Date Reported 07 Jan 2013
 Date Received 19 Dec 2012

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(898/20210).

Samples were diluted due to high conductivity for metals. Hence the LORs were raised.

VOC detection limits were raised for sample "TZZ" due to sample matrix interferences.

SVOC detection limits were raised for some analytes due to sample matrix interferences.

SIGNATORIES



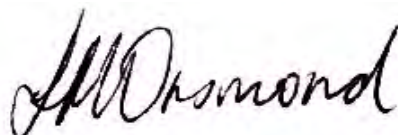
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Gary Walton
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Metals Supervisor



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Inorganics Coordinator



Michael McKay
Inorganic Team Leader - Waters



Ohmar David
Metals Chemist

	Sample Number	PE073420.001
	Sample Matrix	Water
	Sample Date	18 Dec 2012
	Sample Name	TZZ
Parameter	Units	LOR

Nitrate Nitrogen and Nitrite Nitrogen (NOx) by FIA Method: AN258

Nitrate/Nitrite Nitrogen, NOx as N	mg/L	0.005	0.023
Nitrite Nitrogen, NO ₂ as N	mg/L	0.005	<0.005
Nitrate Nitrogen, NO ₃ as N	mg/L	0.005	0.023

Low Level Ammonia Nitrogen by FIA Method: AN261

Ammonia Nitrogen, NH ₃ as N	mg/L	0.005	0.72
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TKN Kjeldahl Digestion by Discrete Analyser Method: AN281

Total Kjeldahl Nitrogen	mg/L	0.05	1.2
Total Nitrogen (calc)	mg/L	0.05	1.2

Total Phosphorus by Kjeldahl Digestion DA in Water Method: AN279/AN293

Total Phosphorus (Kjeldahl Digestion)	mg/L	0.01	0.15
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Filterable Reactive Phosphorus (FRP) Method: AN278

Filterable Reactive Phosphorus	mg/L	0.005	0.13
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Sulphide by Titration in Water Method: AN149

Sulphide	mg/L	0.5	<0.5
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Total Cyanide in water by Discrete Analyser (Aquakem) Method: AN077/AN287

Total Cyanide	mg/L	0.004	<0.004
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Metals in Water (Dissolved) by ICPOES Method: AN320/AN321

Magnesium, Mg	mg/L	0.1	900
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Hexavalent Chromium in water by Discrete Analyser Method: AN283

Hexavalent Chromium, Cr6+	mg/L	0.002	<0.002
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Trace Metals (Dissolved) in Water by ICPMS Method: AN318

Aluminium, Al	µg/L	1	530
Arsenic, As	µg/L	1	<10 †
Boron, B	µg/L	5	2900
Cadmium, Cd	µg/L	0.1	<1.0 †
Chromium, Cr	µg/L	1	<10 †
Copper, Cu	µg/L	1	<10 †
Iron, Fe	µg/L	5	1400
Lead, Pb	µg/L	1	<10 †
Manganese, Mn	µg/L	1	130
Molybdenum, Mo	µg/L	1	<10 †
Nickel, Ni	µg/L	1	<10 †
Selenium, Se	µg/L	2	<20 †
Tin, Sn	µg/L	1	<10 †
Zinc, Zn	µg/L	1	43

Sample Number	PE073420.001
Sample Matrix	Water
Sample Date	18 Dec 2012
Sample Name	TZZ

Parameter Units LOR

Mercury (dissolved) in Water Method: AN311/AN312

Mercury	mg/L	0.00005	<0.00005
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Volatile Petroleum Hydrocarbons in Water Method: AN433/AN434/AN410

TRH C6-C9	µg/L	40	74
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	98
d4-1,2-dichloroethane (Surrogate)	%	-	98
d8-toluene (Surrogate)	%	-	107
Bromofluorobenzene (Surrogate)	%	-	98

VPH F Bands

Benzene (F0)	µg/L	0.5	-
TRH C6-C10 minus BTEX (F1)	µg/L	50	74

VOCs in Water Method: AN433/AN434

Fumigants

2,2-dichloropropane	µg/L	0.5	<0.5
1,2-dichloropropane	µg/L	0.5	<0.5
cis-1,3-dichloropropene	µg/L	0.5	<0.5
trans-1,3-dichloropropene	µg/L	0.5	<0.5
1,2-dibromoethane (EDB)	µg/L	0.5	<0.5

Halogenated Aliphatics

Dichlorodifluoromethane (CFC-12)	µg/L	5	<5
Chloromethane	µg/L	5	<5
Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3
Bromomethane	µg/L	10	<10
Chloroethane	µg/L	5	<5
Trichlorofluoromethane	µg/L	1	<1
Iodomethane	µg/L	5	<5
1,1-dichloroethene	µg/L	0.5	<0.5
Dichloromethane (Methylene chloride)	µg/L	5	<5
Allyl chloride	µg/L	0.5	<0.5
trans-1,2-dichloroethene	µg/L	0.5	<0.5
1,1-dichloroethane	µg/L	0.5	<0.5
cis-1,2-dichloroethene	µg/L	0.5	<0.5
Bromochloromethane	µg/L	0.5	<0.5
1,2-dichloroethane	µg/L	0.5	<0.5
1,1,1-trichloroethane	µg/L	0.5	<0.5
1,1-dichloropropene	µg/L	0.5	<0.5
Carbon tetrachloride	µg/L	0.5	<0.5
Dibromomethane	µg/L	0.5	<0.5
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5
1,1,2-trichloroethane	µg/L	0.5	<0.5
1,3-dichloropropane	µg/L	0.5	<0.5
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5
1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5
cis-1,4-dichloro-2-butene	µg/L	1	<1
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5
1,2,3-trichloropropane	µg/L	0.5	<0.5
trans-1,4-dichloro-2-butene	µg/L	1	<1
1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5
Hexachlorobutadiene	µg/L	1	<1

	Sample Number	PE073420.001
	Sample Matrix	Water
	Sample Date	18 Dec 2012
	Sample Name	TZZ
Parameter	Units	LOR

VOCs in Water Method: AN433/AN434 (continued)

Halogenated Aromatics

Parameter	Units	LOR	Result
Chlorobenzene	µg/L	0.5	<0.5
Bromobenzene	µg/L	0.5	<0.5
2-chlorotoluene	µg/L	0.5	<1.0†
4-chlorotoluene	µg/L	0.5	<1.0†
1,3-dichlorobenzene	µg/L	0.5	<0.5
1,4-dichlorobenzene	µg/L	0.3	<0.3
1,2-dichlorobenzene	µg/L	0.5	<0.5
1,2,4-trichlorobenzene	µg/L	0.5	<0.5
1,2,3-trichlorobenzene	µg/L	0.5	<0.5

Monocyclic Aromatic Hydrocarbons

Parameter	Units	LOR	Result
Benzene	µg/L	0.5	3.4
Toluene	µg/L	0.5	3.9
Ethylbenzene	µg/L	0.5	2.1
m/p-xylene	µg/L	1	4
o-xylene	µg/L	0.5	2.0
Styrene (Vinyl benzene)	µg/L	0.5	<0.5
Isopropylbenzene (Cumene)	µg/L	0.5	0.6
n-propylbenzene	µg/L	0.5	0.9
1,3,5-trimethylbenzene	µg/L	0.5	1.1
tert-butylbenzene	µg/L	0.5	<0.5
1,2,4-trimethylbenzene	µg/L	0.5	2.9
sec-butylbenzene	µg/L	0.5	<0.5
p-isopropyltoluene	µg/L	0.5	1.3
n-butylbenzene	µg/L	0.5	<2.0†

Nitrogenous Compounds

Acrylonitrile	µg/L	0.5	<0.5
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Oxygenated Compounds

Acetone (2-propanone)	µg/L	10	<50†
MTBE (Methyl-tert-butyl ether)	µg/L	2	<2
Vinyl acetate	µg/L	10	<10
MEK (2-butanone)	µg/L	10	<20†
MIBK (4-methyl-2-pentanone)	µg/L	5	<5
2-hexanone (MBK)	µg/L	5	<5

Sample Number	PE073420.001	
Sample Matrix	Water	
Sample Date	18 Dec 2012	
Sample Name	TZZ	
Parameter	Units	LOR

VOCs in Water Method: AN433/AN434 (continued)

Polycyclic VOCs

Naphthalene	µg/L	0.5	<2.0†
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Sulphonated Compounds

Carbon disulfide	µg/L	0.5	<0.5
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Surrogates

Dibromofluoromethane (Surrogate)	%	-	98
d4-1,2-dichloroethane (Surrogate)	%	-	98
d8-toluene (Surrogate)	%	-	107
Bromofluorobenzene (Surrogate)	%	-	98

Trihalomethanes

Chloroform (THM)	µg/L	0.5	<0.5
Bromodichloromethane (THM)	µg/L	0.5	<0.5
Dibromochloromethane (THM)	µg/L	0.5	<0.5
Bromoform (THM)	µg/L	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Water Method: AN403

TRH C10-C14	µg/L	50	<50
TRH C15-C28	µg/L	200	<200
TRH C29-C36	µg/L	200	<200

TRH F Bands

TRH >C10-C16 (F2)	µg/L	60	<60
TRH >C16-C34 (F3)	µg/L	500	<500
TRH >C34-C40 (F4)	µg/L	500	<500

Low Level OC Pesticides in Water Method: AN400/AN420

Lindane (gamma BHC)	µg/L	0.05	<0.05
Aldrin	µg/L	0.01	<0.01
p,p'-DDE	µg/L	0.01	<0.01
p,p'-DDD	µg/L	0.01	<0.01
Methoxychlor	µg/L	0.1	<0.1
Hexachlorobenzene	µg/L	0.01	<0.01
Alpha BHC	µg/L	0.05	<0.05
Beta BHC	µg/L	0.05	<0.05
Delta BHC	µg/L	0.05	<0.05
Endrin Ketone	µg/L	0.05	<0.05
Heptachlor epoxide	µg/L	0.02	<0.02

Sample Number	PE073420.001	
Sample Matrix	Water	
Sample Date	18 Dec 2012	
Sample Name	TZZ	
Parameter	Units	LOR

Low Level OC Pesticides in Water Method: AN400/AN420 (continued)

Surrogates

d14-p-terphenyl (Surrogate)	%	-	53
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Ultra Low Level OC Pesticides in Water Method: AN400/AN420

Heptachlor	µg/L	0.01	<0.01
Gamma Chlordane	µg/L	0.002	<0.002
Alpha Chlordane	µg/L	0.002	<0.005 †
Alpha Endosulfan	µg/L	0.005	<0.005
Dieldrin	µg/L	0.002	<0.002
Endrin	µg/L	0.004	<0.004
Beta Endosulfan	µg/L	0.005	<0.005
Endosulfan Sulphate	µg/L	0.005	<0.010 †
p,p'-DDT	µg/L	0.002	<0.010 †

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	-
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Low Level OP Pesticides in Water Method: AN400/AN420

Azinphos-methyl (Guthion)	µg/L	0.05	<0.05
Bromophos Ethyl	µg/L	0.05	<0.05
Diazinon (Dimpylate)	µg/L	0.01	<0.01
Dichlorvos	µg/L	0.5	<0.5
Ethion	µg/L	0.05	<0.05
Fenitrothion	µg/L	0.2	<0.2
Malathion	µg/L	0.05	<0.05
Methidathion	µg/L	0.05	<0.05

Surrogates

d14-p-terphenyl (Surrogate)	%	-	53
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Ultra Low Level OP Pesticides in Water Method: AN400/AN420

Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.009	<0.009
Parathion-ethyl (Parathion)	µg/L	0.004	<0.006 †

Sample Number	PE073420.001
Sample Matrix	Water
Sample Date	18 Dec 2012
Sample Name	TZZ

Parameter	Units	LOR
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Speciated Phenols in Water Method: AN420

Parameter	Units	LOR	Result
Phenol	µg/L	0.5	<0.5
2-methyl phenol (o-cresol)	µg/L	0.5	<0.5
3/4-methyl phenol (m/p-cresol)	µg/L	1	<1
2-chlorophenol	µg/L	0.5	<0.5
2,4-dimethyl phenol	µg/L	0.5	<0.5
2,6-dichlorophenol	µg/L	0.5	<0.5
2,4-dichlorophenol	µg/L	0.5	<0.5
2,4,6-trichlorophenol	µg/L	0.5	<0.5
2-nitrophenol	µg/L	0.5	<0.5
4-nitrophenol	µg/L	1	<1
2,4,5-trichlorophenol	µg/L	0.5	<0.5
2,3,4,6-tetrachlorophenol	µg/L	0.5	<0.5
Pentachlorophenol	µg/L	0.5	<0.5
2,4-dinitrophenol	µg/L	2	<2

Surrogates

Parameter	Units	LOR	Result
2,4,6-Tribromophenol (Surrogate)	%	-	92

Low Level PCBs in Water Method: AN400/AN420

Parameter	Units	LOR	Result
PCB Congener C28	µg/L	0.02	<0.02
PCB Congener C52	µg/L	0.01	<0.01
PCB Congener C101	µg/L	0.004	<0.006 †
PCB Congener C118	µg/L	0.004	<0.006 †
PCB Congener C138	µg/L	0.004	<0.006 †
PCB Congener C153	µg/L	0.004	<0.006 †
PCB Congener C180	µg/L	0.004	<0.006 †

Surrogates

Parameter	Units	LOR	Result
d14-p-terphenyl (Surrogate)	%	-	53

Low Level PAH (Poly Aromatic Hydrocarbons) in Water Method: AN420

Parameter	Units	LOR	Result
Naphthalene	µg/L	0.02	<0.02
2-methylnaphthalene	µg/L	0.01	<0.01
1-methylnaphthalene	µg/L	0.01	<0.01
Acenaphthylene	µg/L	0.01	<0.01
Acenaphthene	µg/L	0.01	<0.01
Fluorene	µg/L	0.01	<0.01
Phenanthrene	µg/L	0.01	<0.01
Anthracene	µg/L	0.01	<0.01
Fluoranthene	µg/L	0.01	<0.02 †
Pyrene	µg/L	0.01	0.02
Benzo(a)anthracene	µg/L	0.01	<0.01
Chrysene	µg/L	0.01	<0.01
Benzo(b&k)fluoranthene	µg/L	0.02	<0.02
Benzo(a)pyrene	µg/L	0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L	0.01	<0.01
Dibenzo(a&h)anthracene	µg/L	0.01	<0.01
Benzo(ghi)perylene	µg/L	0.01	<0.01

	Sample Number	PE073420.001
	Sample Matrix	Water
	Sample Date	18 Dec 2012
	Sample Name	TZZ

Parameter	Units	LOR	
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Low Level PAH (Poly Aromatic Hydrocarbons) in Water Method: AN420 (continued)

Surrogates

d14-p-terphenyl (Surrogate)	%	-	53
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Carbamates in Water Method: AN420

Carbamates

Carbofuran	µg/L	0.5	<0.5
Carbaryl	µg/L	0.5	<0.5

Surrogates

d14-p-terphenyl (Surrogate)	%	-	92
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Acid Herbicides in Water Method: AN420

Clopyralid	µg/L	0.5	<0.5
4-chlorophenoxy acetic acid (4-CPA)	µg/L	1	<1
Dicamba	µg/L	0.5	<0.5
MCPP (Mecoprop)	µg/L	0.5	<0.5
MCPA	µg/L	0.5	<0.5
2,6-D	µg/L	0.5	<0.5
Dichlorprop (2,4-DP)	µg/L	0.5	<0.5
2,4-D	µg/L	0.5	<0.5
Bromoxynil	µg/L	0.5	<0.5
Triclopyr	µg/L	0.5	<0.5
2,4,6-T	µg/L	0.5	<0.5
2,4,5-TP (Silvex, Fenopop)	µg/L	0.5	<0.5
2,4,5-T	µg/L	0.5	<0.5
MCPB	µg/L	1	<1
Dinoseb (Dinitrobutylphenol)	µg/L	0.5	<0.5
Fluroxypyr	µg/L	0.5	<0.5
2,4-DB	µg/L	0.5	<0.5
loxynil	µg/L	1	<1
Picloram	µg/L	1	<1

Surrogates

2,4-DCPAA (Surrogate)	%	-	70
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Sample Number	PE073420.001	
Sample Matrix	Water	
Sample Date	18 Dec 2012	
Sample Name	TZZ	
Parameter	Units	LOR

Enterococci in Water Method: AN705

Date Processed*	No unit	-	19.12.12
Time Processed*	hours	-	15.45
Enterococci	CFU/100mL	1	2

E. coli and Thermotolerant coliforms in Water Method: AN703

Date Processed*	No unit	-	19.12.12
Time Processed*	hours	-	15.25
Thermotolerant Coliforms	CFU/100mL	1	2

MB blank results are compared to the Limit of Reporting
 LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
 DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Acid Herbicides in Water Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Clopyralid	LB056077	µg/L	0.5	<0.5	
4-chlorophenoxy acetic acid (4-CPA)	LB056077	µg/L	1	<1	
Dicamba	LB056077	µg/L	0.5	<0.5	
MCCPP (Mecoprop)	LB056077	µg/L	0.5	<0.5	73%
MCPA	LB056077	µg/L	0.5	<0.5	
2,6-D	LB056077	µg/L	0.5	<0.5	
Dichlorprop (2,4-DP)	LB056077	µg/L	0.5	<0.5	
2,4-D	LB056077	µg/L	0.5	<0.5	61%
Bromoxynil	LB056077	µg/L	0.5	<0.5	
Triclopyr	LB056077	µg/L	0.5	<0.5	
2,4,6-T	LB056077	µg/L	0.5	<0.5	
2,4,5-TP (Silvex, Fenopop)	LB056077	µg/L	0.5	<0.5	68%
2,4,5-T	LB056077	µg/L	0.5	<0.5	66%
MCPB	LB056077	µg/L	1	<1	
Dinoseb (Dinitrobutylphenol)	LB056077	µg/L	0.5	<0.5	
Fluroxypyr	LB056077	µg/L	0.5	<0.5	
2,4-DB	LB056077	µg/L	0.5	<0.5	
loxynil	LB056077	µg/L	1	<1	
Picloram	LB056077	µg/L	1	<1	

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
2,4-DCPAA (Surrogate)	LB056077	%	-	72%	72%

Carbamates in Water Method: ME-(AU)-[ENV]AN420

Carbamates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Carbofuran	LB056077	µg/L	0.5	<0.5	54%
Carbaryl	LB056077	µg/L	0.5	<0.5	

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
d14-p-terphenyl (Surrogate)	LB056077	%	-	87%	118%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared to the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

Filterable Reactive Phosphorus (FRP) Method: ME-(AU)-[ENV]AN278

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Filterable Reactive Phosphorus	LB056000	mg/L	0.005	<0.005	2%	106 - 107%	118 - 127%

Hexavalent Chromium in water by Discrete Analyser Method: ME-(AU)-[ENV]AN283

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Hexavalent Chromium, Cr6+	LB056074	mg/L	0.002	<0.002	0 - 1%	104 - 105%	96%

Low Level Ammonia Nitrogen by FIA Method: ME-(AU)-[ENV]AN261

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Ammonia Nitrogen, NH ₃ as N	LB056010	mg/L	0.005	<0.005	0 - 9%	103 - 104%

Low Level OC Pesticides in Water Method: ME-(AU)-[ENV]AN400/AN420

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Lindane (gamma BHC)	LB056077	µg/L	0.05	<0.05	81%
Aldrin	LB056077	µg/L	0.01	<0.01	115%
p,p'-DDE	LB056077	µg/L	0.01	<0.01	138%
p,p'-DDD	LB056077	µg/L	0.01	<0.01	
Methoxychlor	LB056077	µg/L	0.1	<0.1	
Hexachlorobenzene	LB056077	µg/L	0.01	<0.01	106%
Alpha BHC	LB056077	µg/L	0.05	<0.05	
Beta BHC	LB056077	µg/L	0.05	<0.05	
Delta BHC	LB056077	µg/L	0.05	<0.05	
Endrin Ketone	LB056077	µg/L	0.05	<0.05	
Heptachlor epoxide	LB056077	µg/L	0.02	<0.02	

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
d14-p-terphenyl (Surrogate)	LB056077	%	-	87%	118%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

Low Level OP Pesticides in Water Method: ME-(AU)-[ENV]AN400/AN420

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Azinphos-methyl (Guthion)	LB056077	µg/L	0.05	<0.05	
Bromophos Ethyl	LB056077	µg/L	0.05	<0.05	
Diazinon (Dimpylate)	LB056077	µg/L	0.01	<0.01	76%
Dichlorvos	LB056077	µg/L	0.5	<0.5	
Ethion	LB056077	µg/L	0.05	<0.05	
Fenitrothion	LB056077	µg/L	0.2	<0.2	
Malathion	LB056077	µg/L	0.05	<0.05	
Methidathion	LB056077	µg/L	0.05	<0.05	57%

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
d14-p-terphenyl (Surrogate)	LB056077	%	-	87%	118%

Low Level PAH (Poly Aromatic Hydrocarbons) in Water Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Naphthalene	LB056077	µg/L	0.02	<0.02	115%
2-methylnaphthalene	LB056077	µg/L	0.01	<0.01	
1-methylnaphthalene	LB056077	µg/L	0.01	<0.01	
Acenaphthylene	LB056077	µg/L	0.01	<0.01	
Acenaphthene	LB056077	µg/L	0.01	<0.01	
Fluorene	LB056077	µg/L	0.01	<0.01	97%
Phenanthrene	LB056077	µg/L	0.01	<0.01	86%
Anthracene	LB056077	µg/L	0.01	<0.01	
Fluoranthene	LB056077	µg/L	0.01	<0.01	
Pyrene	LB056077	µg/L	0.01	<0.01	91%
Benzo(a)anthracene	LB056077	µg/L	0.01	<0.01	99%
Chrysene	LB056077	µg/L	0.01	<0.01	
Benzo(b&k)fluoranthene	LB056077	µg/L	0.02	<0.02	
Benzo(a)pyrene	LB056077	µg/L	0.01	<0.01	144%
Indeno(1,2,3-cd)pyrene	LB056077	µg/L	0.01	<0.01	
Dibenzo(a&h)anthracene	LB056077	µg/L	0.01	<0.01	
Benzo(ghi)perylene	LB056077	µg/L	0.01	<0.01	

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
d14-p-terphenyl (Surrogate)	LB056077	%	-	87%	118%

MB blank results are compared to the Limit of Reporting
 LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
 DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

Low Level PCBs in Water Method: ME-(AU)-[ENV]AN400/AN420

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
PCB Congener C28	LB056077	µg/L	0.02	<0.02	
PCB Congener C52	LB056077	µg/L	0.01	<0.01	
PCB Congener C101	LB056077	µg/L	0.004	<0.004	
PCB Congener C118	LB056077	µg/L	0.004	<0.004	
PCB Congener C138	LB056077	µg/L	0.004	<0.004	
PCB Congener C153	LB056077	µg/L	0.004	<0.004	
PCB Congener C180	LB056077	µg/L	0.004	<0.004	51%

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
d14-p-terphenyl (Surrogate)	LB056077	%	-	87%	82%

Mercury (dissolved) in Water Method: ME-(AU)-[ENV]AN311/AN312

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB056495	mg/L	0.00005	<0.00005	0%	95%	85%

Metals in Water (Dissolved) by ICPOES Method: ME-(AU)-[ENV]AN320/AN321

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Magnesium, Mg	LB055855	mg/L	0.1	<0.1	0%	102%

Nitrate Nitrogen and Nitrite Nitrogen (NOx) by FIA Method: ME-(AU)-[ENV]AN258

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Nitrate/Nitrite Nitrogen, NOx as N	LB056010	mg/L	0.005	<0.005	0 - 30%	96 - 106%
Nitrite Nitrogen, NO ₂ as N	LB056010	mg/L	0.005	<0.005	0 - 5%	96 - 106%
Nitrate Nitrogen, NO ₃ as N	LB056010	mg/L	0.005	<0.005		

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

Speciated Phenols in Water Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Phenol	LB056077	µg/L	0.5	<0.5	63%
2-methyl phenol (o-cresol)	LB056077	µg/L	0.5	<0.5	99%
3/4-methyl phenol (m/p-cresol)	LB056077	µg/L	1	<1	
2-chlorophenol	LB056077	µg/L	0.5	<0.5	
2,4-dimethyl phenol	LB056077	µg/L	0.5	<0.5	
2,6-dichlorophenol	LB056077	µg/L	0.5	<0.5	54%
2,4-dichlorophenol	LB056077	µg/L	0.5	<0.5	72%
2,4,6-trichlorophenol	LB056077	µg/L	0.5	<0.5	58%
2-nitrophenol	LB056077	µg/L	0.5	<0.5	
4-nitrophenol	LB056077	µg/L	1	<1	
2,4,5-trichlorophenol	LB056077	µg/L	0.5	<0.5	
2,3,4,6-tetrachlorophenol	LB056077	µg/L	0.5	<0.5	
Pentachlorophenol	LB056077	µg/L	0.5	<0.5	102%
2,4-dinitrophenol	LB056077	µg/L	2	<2	

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
2,4,6-Tribromophenol (Surrogate)	LB056077	%	-	86%	85%

Sulphide by Titration in Water Method: ME-(AU)-[ENV]AN149

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Sulphide	LB056407	mg/L	0.5	<0.5	86%

TKN Kjeldahl Digestion by Discrete Analyser Method: ME-(AU)-[ENV]AN281

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Total Kjeldahl Nitrogen	LB055943	mg/L	0.05	<0.05	2%	106%
Total Nitrogen (calc)	LB055943	mg/L	0.05	<0.05	2%	NA

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared to the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

Total Cyanide in water by Discrete Analyser (Aquakem) Method: ME-(AU)-[ENV]AN077/AN287

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Total Cyanide	LB056413	mg/L	0.004	<0.004	0%	91%	90 - 91%

Total Phosphorus by Kjeldahl Digestion DA in Water Method: ME-(AU)-[ENV]AN279/AN293

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Total Phosphorus (Kjeldahl Digestion)	LB055943	mg/L	0.01	<0.01	2%	99%

Trace Metals (Dissolved) in Water by ICPMS Method: ME-(AU)-[ENV]AN318

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Aluminium, Al	LB055853	µg/L	1	<1	3%	116%	
Arsenic, As	LB055853	µg/L	1	<1	0%	104%	104%
Boron, B	LB055853	µg/L	5	<5	2%	91%	
Cadmium, Cd	LB055853	µg/L	0.1	<0.1	0%	102%	101%
Chromium, Cr	LB055853	µg/L	1	<1	0%	105%	100%
Copper, Cu	LB055853	µg/L	1	<1	0%	106%	95%
Iron, Fe	LB055853	µg/L	5	<5	0%	118%	
Lead, Pb	LB055853	µg/L	1	<1	0%	106%	105%
Manganese, Mn	LB055853	µg/L	1	<1	1%	104%	
Molybdenum, Mo	LB055853	µg/L	1	<1	0%	100%	
Nickel, Ni	LB055853	µg/L	1	<1	1%	104%	100%
Selenium, Se	LB055853	µg/L	2	<2	0%	106%	
Tin, Sn	LB055853	µg/L	1	<1	0%	97%	
Zinc, Zn	LB055853	µg/L	1	<1	4%	106%	96%

TRH (Total Recoverable Hydrocarbons) in Water Method: ME-(AU)-[ENV]AN403

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
TRH C10-C14	LB056077	µg/L	50	<50	94%
TRH C15-C28	LB056077	µg/L	200	<200	96%
TRH C29-C36	LB056077	µg/L	200	<200	92%

TRH F Bands

Parameter	QC Reference	Units	LOR	MB
TRH >C10-C16 (F2)	LB056077	µg/L	60	<60
TRH >C16-C34 (F3)	LB056077	µg/L	500	<500
TRH >C34-C40 (F4)	LB056077	µg/L	500	<500

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

Ultra Low Level OC Pesticides in Water Method: ME-(AU)-[ENV]AN400/AN420

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Heptachlor	LB056077	µg/L	0.01	<0.00	78%
Gamma Chlordane	LB056077	µg/L	0.002	<0.002	110%
Alpha Chlordane	LB056077	µg/L	0.002	<0.002	
Alpha Endosulfan	LB056077	µg/L	0.005	<0.005	
Dieldrin	LB056077	µg/L	0.002	<0.002	100%
Endrin	LB056077	µg/L	0.004	<0.004	84%
Beta Endosulfan	LB056077	µg/L	0.005	<0.005	
Endosulfan Sulphate	LB056077	µg/L	0.005	<0.005	
p,p'-DDT	LB056077	µg/L	0.002	<0.001	

Ultra Low Level OP Pesticides in Water Method: ME-(AU)-[ENV]AN400/AN420

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Chlorpyrifos (Chlorpyrifos Ethyl)	LB056077	µg/L	0.009	<0.009	58%
Parathion-ethyl (Parathion)	LB056077	µg/L	0.004	<0.004	70%

VOCs in Water Method: ME-(AU)-[ENV]AN433/AN434

Fumigants

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
2,2-dichloropropane	LB055901	µg/L	0.5	<0.5	
1,2-dichloropropane	LB055901	µg/L	0.5	<0.5	95%
cis-1,3-dichloropropene	LB055901	µg/L	0.5	<0.5	92%
trans-1,3-dichloropropene	LB055901	µg/L	0.5	<0.5	93%
1,2-dibromoethane (EDB)	LB055901	µg/L	0.5	<0.5	

Halogenated Aliphatics

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Dichlorodifluoromethane (CFC-12)	LB055901	µg/L	5	<5	
Chloromethane	LB055901	µg/L	5	<5	
Vinyl chloride (Chloroethene)	LB055901	µg/L	0.3	<0.3	
Bromomethane	LB055901	µg/L	10	<10	
Chloroethane	LB055901	µg/L	5	<5	
Trichlorofluoromethane	LB055901	µg/L	1	<1	
Iodomethane	LB055901	µg/L	5	<5	
1,1-dichloroethene	LB055901	µg/L	0.5	<0.5	78%
Dichloromethane (Methylene chloride)	LB055901	µg/L	5	<5	
Allyl chloride	LB055901	µg/L	0.5	<2.0	
trans-1,2-dichloroethene	LB055901	µg/L	0.5	<0.5	89%
1,1-dichloroethane	LB055901	µg/L	0.5	<0.5	93%
cis-1,2-dichloroethene	LB055901	µg/L	0.5	<0.5	
Bromochloromethane	LB055901	µg/L	0.5	<0.5	
1,2-dichloroethane	LB055901	µg/L	0.5	<0.5	92%
1,1,1-trichloroethane	LB055901	µg/L	0.5	<0.5	
1,1-dichloropropene	LB055901	µg/L	0.5	<0.5	
Carbon tetrachloride	LB055901	µg/L	0.5	<0.5	94%
Dibromomethane	LB055901	µg/L	0.5	<0.5	
Trichloroethene (Trichloroethylene,TCE)	LB055901	µg/L	0.5	<0.5	100%
1,1,2-trichloroethane	LB055901	µg/L	0.5	<0.5	93%
1,3-dichloropropane	LB055901	µg/L	0.5	<0.5	
Tetrachloroethene (Perchloroethylene,PCE)	LB055901	µg/L	0.5	<0.5	
1,1,1,2-tetrachloroethane	LB055901	µg/L	0.5	<0.5	
cis-1,4-dichloro-2-butene	LB055901	µg/L	1	<1	
1,1,2,2-tetrachloroethane	LB055901	µg/L	0.5	<0.5	96%
1,2,3-trichloropropane	LB055901	µg/L	0.5	<0.5	
trans-1,4-dichloro-2-butene	LB055901	µg/L	1	<1	

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

VOCs in Water Method: ME-(AU)-[ENV]AN433/AN434 (continued)

				MB	LCS %Recovery
1,2-dibromo-3-chloropropane	LB055901	µg/L	0.5	<0.5	
Hexachlorobutadiene	LB055901	µg/L	1	<1	

Halogenated Aromatics

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Chlorobenzene	LB055901	µg/L	0.5	<0.5	100%
Bromobenzene	LB055901	µg/L	0.5	<0.5	
2-chlorotoluene	LB055901	µg/L	0.5	<0.5	
4-chlorotoluene	LB055901	µg/L	0.5	<0.5	
1,3-dichlorobenzene	LB055901	µg/L	0.5	<0.5	84%
1,4-dichlorobenzene	LB055901	µg/L	0.3	<0.3	101%
1,2-dichlorobenzene	LB055901	µg/L	0.5	<0.5	96%
1,2,4-trichlorobenzene	LB055901	µg/L	0.5	<0.5	
1,2,3-trichlorobenzene	LB055901	µg/L	0.5	<0.5	

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Benzene	LB055901	µg/L	0.5	<0.5	93%
Toluene	LB055901	µg/L	0.5	<0.5	97%
Ethylbenzene	LB055901	µg/L	0.5	<0.5	100%
m/p-xylene	LB055901	µg/L	1	<1	
o-xylene	LB055901	µg/L	0.5	<0.5	
Styrene (Vinyl benzene)	LB055901	µg/L	0.5	<0.5	
Isopropylbenzene (Cumene)	LB055901	µg/L	0.5	<0.5	
n-propylbenzene	LB055901	µg/L	0.5	<0.5	
1,3,5-trimethylbenzene	LB055901	µg/L	0.5	<0.5	
tert-butylbenzene	LB055901	µg/L	0.5	<0.5	
1,2,4-trimethylbenzene	LB055901	µg/L	0.5	<0.5	
sec-butylbenzene	LB055901	µg/L	0.5	<0.5	
p-isopropyltoluene	LB055901	µg/L	0.5	<0.5	
n-butylbenzene	LB055901	µg/L	0.5	<0.5	

Nitrogenous Compounds

Parameter	QC Reference	Units	LOR	MB
Acrylonitrile	LB055901	µg/L	0.5	<0.5

Oxygenated Compounds

Parameter	QC Reference	Units	LOR	MB
Acetone (2-propanone)	LB055901	µg/L	10	<10
MtBE (Methyl-tert-butyl ether)	LB055901	µg/L	2	<1
Vinyl acetate	LB055901	µg/L	10	<10
MEK (2-butanone)	LB055901	µg/L	10	<10
MIBK (4-methyl-2-pentanone)	LB055901	µg/L	5	<5
2-hexanone (MBK)	LB055901	µg/L	5	<5

Polycyclic VOCs

Parameter	QC Reference	Units	LOR	MB
Naphthalene	LB055901	µg/L	0.5	<0.5

Sulphonated Compounds

Parameter	QC Reference	Units	LOR	MB
Carbon disulfide	LB055901	µg/L	0.5	<2.0

Surrogates

MB blank results are compared to the Limit of Reporting
 LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
 DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

VOCs in Water Method: ME-(AU)-[ENV]AN433/AN434 (continued)

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Dibromofluoromethane (Surrogate)	LB055901	%	-	115%	101%
d4-1,2-dichloroethane (Surrogate)	LB055901	%	-	117%	106%
d8-toluene (Surrogate)	LB055901	%	-	91%	106%
Bromofluorobenzene (Surrogate)	LB055901	%	-	78%	107%

Trihalomethanes

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Chloroform (THM)	LB055901	µg/L	0.5	<0.5	96%
Bromodichloromethane (THM)	LB055901	µg/L	0.5	<0.5	92%
Dibromochloromethane (THM)	LB055901	µg/L	0.5	<0.5	87%
Bromoform (THM)	LB055901	µg/L	0.5	<0.5	94%

Volatile Petroleum Hydrocarbons in Water Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
TRH C6-C9	LB055901	µg/L	40	<40	104%

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Dibromofluoromethane (Surrogate)	LB055901	%	-	115%	101%
d4-1,2-dichloroethane (Surrogate)	LB055901	%	-	117%	106%
d8-toluene (Surrogate)	LB055901	%	-	91%	106%
Bromofluorobenzene (Surrogate)	LB055901	%	-	78%	107%

VPH F Bands

Parameter	QC Reference	Units	LOR	MB
TRH C6-C10 minus BTEX (F1)	LB055901	µg/L	50	<50

METHOD

METHODOLOGY SUMMARY

AN077	Hydrogen cyanide is liberated from an acidified sample by distillation and purging with air. The hydrogen cyanide gas is then collected by passing it through a sodium hydroxide scrubbing solution. The scrubbing solution will then be analysed for cyanide by the appropriate method.
AN083	Separatory funnels are used for aqueous samples and extracted by transferring an appropriate volume (mass) of liquid into a separatory funnel and adding 3 serial aliquots of dichloromethane. Samples receive a single extraction at pH 7 to recover base / neutral analytes and two extractions at pH < 2 to recover acidic analytes. QC samples are prepared by spiking organic free water with target analytes and extracting as per samples.
AN149	Sulphide by Iodometric Titration: Sulphide is precipitated as zinc sulphide to overcome interferences with sulphite and thiosulphate. After filtration, sulphide is determined titrimetrically. Reference APHA 4500-S2-
AN258	Nitrate and Nitrite by FIA: In an acidic medium, nitrate is reduced quantitatively to nitrite by cadmium metal. This nitrite plus any original nitrite is determined as an intense red-pink azo dye at 540 nm following diazotisation with sulphanilamide and subsequent coupling with N-(1-naphthyl) ethylenediamine dihydrochloride. Without the cadmium reduction only the original nitrite is determined. Reference APHA 4500-NO3- F.
AN261	Ammonia by Continuous Flow Analyser: Ammonium in a basic medium forms ammonia gas, which is separated from the sample matrix by diffusion through a polypropylene membrane. The ammonia is reacted with phenol and hypochlorite to form indophenol blue at an intensity proportional to the ammonia concentration. The blue colour is intensified with sodium nitroprusside and the absorbance measured at 630 nm. The sensitivity of the automated method is 10-20 times that of the macro method. Reference APHA 4500-NH3 H.
AN278	Reactive Phosphorus by DA: Orthophosphate reacts with ammonium molybdate (Mo VI) and potassium antimony tartrate (Sb III) in acid medium to form an antimony-phosphomolybdate complex. This complex is subsequently reduced with ascorbic acid to form a blue colour and the absorbance is read at 880 nm. The sensitivity of the automated method is 10-20 times that of the macro method. Reference APHA 4500-P F
AN279/AN293	The sample is digested with Sulphuric acid, K ₂ SO ₄ and CuSO ₄ . All forms of phosphorus are converted into orthophosphate. The digest is cooled and placed on the discrete analyser for colorimetric analysis.
AN281	An unfiltered water or soil sample is first digested in a block digester with sulphuric acid, K ₂ SO ₄ and CuSO ₄ . The ammonia produced following digestion is then measured colourimetrically using the Aquakem 250 Discrete Analyser. A portion of the digested sample is buffered to an alkaline pH, and interfering cations are complexed. The ammonia then reacts with salicylate and hypochlorite to give a blue colour whose absorbance is measured at 660nm and compared with calibration standards. This is proportional to the concentration of Total Kjeldahl Nitrogen in the original sample.
AN283	Hexavalent Chromium via Aquakem DA: Soluble hexavalent chromium forms a red/violet colour with diphenylcarbazide in acidic solution. This procedure is very sensitive and nearly specific for Cr ⁶⁺ . If total chromium is also measured the trivalent form of chromium Cr ³⁺ can be calculated from the difference (Total Cr - Cr ⁶⁺). Reference APHA3500CrB.
AN287	A buffered distillate or water sample is treated with chloramine/barbituric acid reagents and the intensity of the colour developed is proportional to the cyanide concentration by Aquakem DA.
AN311/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.

METHOD

METHODOLOGY SUMMARY

AN320/AN321	Metals by ICP-OES: Samples are preserved with 10% nitric acid for a wide range of metals and some non-metals. This solution is measured by Inductively Coupled Plasma. Solutions are aspirated into an argon plasma at 8000-10000K and emit characteristic energy or light as a result of electron transitions through unique energy levels. The emitted light is focused onto a diffraction grating where it is separated into components.
AN320/AN321	Photomultipliers or CCDs are used to measure the light intensity at specific wavelengths. This intensity is directly proportional to concentration. Corrections are required to compensate for spectral overlap between elements. Reference APHA 3120 B.
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the Draft NEPM 2011, >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is not corrected for Naphthalene.
AN403	Additionally, the volatile C6-C9/C6-C10 fractions may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependant on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN433/AN434/AN410	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN703	A known volume of water is passed through a membrane of known pore size. The membrane is placed on a selective agar plate and incubated. The volume of sample filtered depends upon the expected count. Referenced to AS4276.7 and APHA9222 D.
AN705	A known volume of water is passed through a membrane of known pore size. The membrane is placed on a selective agar plate and incubated. The volume of sample filtered depends upon the expected count. Referenced to AS/NZS4276.9 and APHA9230 A & C.

METHOD

METHODOLOGY SUMMARY

FOOTNOTES

IS	Insufficient sample for analysis.	QFH	QC result is above the upper tolerance
LNR	Sample listed, but not received.	QFL	QC result is below the lower tolerance
*	This analysis is not covered by the scope of accreditation.	-	The sample was not analysed for this analyte
^	Performed by outside laboratory.	NVL	Not Validated
LOR	Limit of Reporting		
↑↓	Raised or Lowered Limit of Reporting		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here:
<http://www.sgs.com.au/pv.sgsv3/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

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PR073420

PORE WATER ANALYSIS SUITES

CLIENT: _____
 SITE: Burswood Stadium
 PROJECT REF.: I12147
 SCIENTIST (S): JA and AJ
 SAMPLE TYPE: Pore Water
 REPORT TO: Josh Abbott/Alan Foley

Trace metals (Al, As, B, Cd, Cr, Cr(VI), Cu, Fe, Pb, Mg, Mo, Mn, Hg, Ni, Se, Sn, Zn). ICP-MS-ORC	Ultra trace OC/OP Pesticides	TPH/BTEX	VOC	Cyanide	Phenols	Super Ultra trace PAH	Ultra trace PCB's	Nutrients (Total nitrogen, ammonia, nitrate and nitrite as NOx-N, total kjeldahl nitrogen and reactive and total phosphorus)	Carbamates and Herbicides	Volatile Organic Acids	Sulphide	Pathogens (enterococci, thermotolerant coliforms)



38 Station St Subiaco 6008
 Tel: (618) 9382 4744
 Fax: (618) 9382 1177

SAMPLE ID.	DATE	Trace metals	Ultra trace OC/OP Pesticides	TPH/BTEX	VOC	Cyanide	Phenols	Super Ultra trace PAH	Ultra trace PCB's	Nutrients	Carbamates and Herbicides	Volatile Organic Acids	Sulphide	Pathogens	REMARKS
TZZ		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Relinquished by Josh A Organisation RPS
 Date 19/12/12 Time 9:00 AM

Received by CL Organisation _____
 Date 19/12/12 Time 12:05

REGISTRATION DETAILS

APPROVED BY: R. MA

Bottle Map	1ℓ Plastic	500mℓ Plastic	100mℓ Plastic	250mℓ Plastic	125mℓ Plastic	1ℓ Amber	500mℓ Amber	100mℓ Amber	40mℓ Amber Vial	500mℓ Plastic	250mℓ Plastic	125mℓ Plastic	250mℓ Glass Jar	125mℓ Glass Jar	Other Lab	Ziplock Bag/ Other	Job Number:
Sample Numbers:	Green	Green	100mℓ Purple	250mℓ Green	125mℓ Red	1ℓ Green	500mℓ Orange	100mℓ Green	40mℓ White	500mℓ Blue	250mℓ Orange	125mℓ Purple Brown	250mℓ Glass Jar	125mℓ Glass Jar		125ml Ziplock	PE 073420
1			2	2	1		R3	2	2	2		1			ALS	1	
																	# of Eskies:
																	1
																	IB / ICE / None
																	Temp: 10.3 °C
																	Tray Numbers:
																	W-205 V-020
																	Mixto Metals -022

Registration comments:

No sampling date available on the labels as well as on the COC.

Action Taken:

Registered By:

DB [Signature]

PORE WATER ANALYSIS SUITES

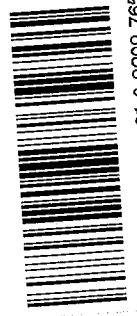
Page 1 / 1
CLIENT: Burswood Stadium
SITE: 12147
PROJECT REF.: JA and AJ
SCIENTIST (S): JA and AJ
SAMPLE TYPE: Pore Water
REPORT TO: Josh Abbott/

SAMPLE ID.	DATE	Trace metals (Al, As, B, Cd, Cr, Cr(VI), Cu, Fe, Pb, Mg, Mo, Mn, Hg, Ni, Se, Sn, Zn), ICP-MS-ORC	Ultra trace OC/OP Pesticides	TPH/BTEX	VOC	Cyanide	Phenols	Ultra trace PAH	Ultra trace PCB's	Nutrients (Total nitrogen, ammonia, nitrate and nitrite as NO ₃ -N, total kjeldahl nitrogen and reactive and total phosphorus)	Carbamates and Herbicides	Volatile Organic Acids	Sulphide	Pathogens (enterococci, thermotolerant coliforms)	REMARKS
1	18/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2	18/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
3	18/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
4	18/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
5	18/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
6	18/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
7	18/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Relinquished by Josh A Organisation RPS
Date 18/12/12 Time 2:30 pm

Received by JCS Organisation AGS
Date 18.12.12 Time 13:44

Environmental Division
Perth
Work Order
EP1210564



Telephone : +61-8-9209 7655

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : EP1210564	
Client : RPS ENVIRONMENT PTY LTD Contact : JOSH ABBOTT Address : 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Laboratory : Environmental Division Perth Contact : Scott James Address : 10 Hod Way Malaga WA Australia 6090
E-mail : josh.abbott@rpsgroup.com.au Telephone : +61 08 93824744 Facsimile : +61 08 93821177	E-mail : perth.enviro.services@alsglobal.com Telephone : +61-8-9209 7655 Facsimile : +61-8-9209 7600
Project : I12147 Order number : ---- C-O-C number : ---- Site : Burswood Stadium Sampler : JA/AJ	Page : 1 of 3 Quote number : EP2012BOWBIS0143 (EP/689/12 V4) QC Level : NEPM 1999 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received : 18-DEC-2012	Issue Date : 19-DEC-2012 10:17
Client Requested Due Date : 07-JAN-2013	Scheduled Reporting Date : 07-JAN-2013

Delivery Details

Mode of Delivery : Client Drop off	Temperature : 3.5 - Ice present
No. of coolers/boxes : 2 medium, 1 large hard eskies	No. of samples received : 7
Security Seal : Not intact.	No. of samples analysed : 7

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- Please see scanned COC for sample discrepancies: extra samples , samples not received etc.
- **Samples received in appropriately pretreated and preserved containers.**
- **pH analysis should be conducted within 6 hours of sampling.**
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (SamplesPerth@alsenviro.com)
- Sample Disposal - Aqueous (14 days), Solid (90 days) from date of completion of Work Order.

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: EP1210564	Page	: 1 of 15
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: JOSH ABBOTT	Contact	: Scott James
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: josh.abbott@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: I12147	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Burswood Stadium	Date Samples Received	: 18-DEC-2012
C-O-C number	: ----	Issue Date	: 09-JAN-2013
Sampler	: JA/AJ	No. of samples received	: 7
Order number	: ----	No. of samples analysed	: 7
Quote number	: EP/689/12 V4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

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	
ED093T: Total Major Cations								
Clear Plastic Bottle - Natural (ED093T) T29P, T31P, TZP, TZB	T30P, T32P, TZR,	18-DEC-2012	19-DEC-2012	25-DEC-2012	✓	19-DEC-2012	25-DEC-2012	✓
EG035T: Total Recoverable Mercury by FIMS								
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG035T) T29P, T31P, TZP, TZB	T30P, T32P, TZR,	18-DEC-2012	----	----	----	04-JAN-2013	01-JAN-2013	*
EG050T: Total Hexavalent Chromium								
Clear Plastic Bottle - NaOH (EG050G-T) T29P, T31P, TZP, TZB	T30P, T32P, TZR,	18-DEC-2012	----	----	----	19-DEC-2012	15-JAN-2013	✓
EG093T: Total Metals in Saline Water by ORC-ICPMS								
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093A-T) T29P, T31P, TZP	T30P, T32P,	18-DEC-2012	03-JAN-2013	16-JUN-2013	✓	03-JAN-2013	16-JUN-2013	✓
EG093T: Total Metals in Saline Water by ORC-ICPMS								
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093B-T) T29P, T31P, TZP	T30P, T32P,	18-DEC-2012	03-JAN-2013	16-JUN-2013	✓	03-JAN-2013	16-JUN-2013	✓
EG094T: Total metals in Fresh water by ORC-ICPMS								
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG094A-T) TZR,	TZB	18-DEC-2012	24-DEC-2012	16-JUN-2013	✓	24-DEC-2012	16-JUN-2013	✓



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
EG094T: Total metals in Fresh water by ORC-ICPMS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG094B-T) TZR, TZB	18-DEC-2012	24-DEC-2012	16-JUN-2013	✓	24-DEC-2012	16-JUN-2013	✓
EK026SF: Total CN by Segmented Flow Analyser							
White Plastic Bottle-NaOH (EK026SF) T29P, T30P, T31P, T32P, TZP, TZR, TZB	18-DEC-2012	---	01-JAN-2013	----	20-DEC-2012	01-JAN-2013	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) T29P, T30P, T31P, T32P, TZP, TZR, TZB	18-DEC-2012	---	15-JAN-2013	----	19-DEC-2012	15-JAN-2013	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) T29P, T30P, T31P, T32P, TZP, TZR, TZB	18-DEC-2012	---	20-DEC-2012	----	18-DEC-2012	20-DEC-2012	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) T29P, T30P, T31P, T32P, TZP, TZR, TZB	18-DEC-2012	---	15-JAN-2013	----	19-DEC-2012	15-JAN-2013	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) T29P, T30P, T31P, T32P, TZP, TZR, TZB	18-DEC-2012	27-DEC-2012	15-JAN-2013	✓	28-DEC-2012	15-JAN-2013	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) T29P, T30P, T31P, T32P, TZP, TZR, TZB	18-DEC-2012	27-DEC-2012	15-JAN-2013	✓	28-DEC-2012	15-JAN-2013	✓



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) T29P, T30P, T31P, T32P, TZP, TZR, TZB	18-DEC-2012	---	20-DEC-2012	----	18-DEC-2012	20-DEC-2012	✓
EK085M: Sulfide as S2-							
Clear Plastic Bottle - Zinc Acetate/NaOH (EK085) T30P, TZP, TZR, TZB	18-DEC-2012	----	----	----	20-DEC-2012	25-DEC-2012	✓
EP045: Volatile Acids as CH3COOH							
Clear Plastic Bottle - Natural (EP045) T30P, TZP, TZR, TZB	18-DEC-2012	----	----	----	28-DEC-2012	01-JAN-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft							
Amber Glass Bottle - Unpreserved (EP071) T29P, T30P, T31P, T32P, TZP, TZR, TZB	18-DEC-2012	20-DEC-2012	25-DEC-2012	✓	21-DEC-2012	29-JAN-2013	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) T29P, T30P, T31P, T32P, TZP, TZR, TZB	18-DEC-2012	19-DEC-2012	01-JAN-2013	✓	20-DEC-2012	01-JAN-2013	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) T29P, T30P, T31P, T32P, TZP, TZR, TZB	18-DEC-2012	19-DEC-2012	01-JAN-2013	✓	20-DEC-2012	01-JAN-2013	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) T29P, T30P, T31P, T32P, TZP, TZR, TZB	18-DEC-2012	19-DEC-2012	01-JAN-2013	✓	20-DEC-2012	01-JAN-2013	✓



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	
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) T29P, T31P, TZP, TZB	T30P, T32P, TZR,	18-DEC-2012	19-DEC-2012	01-JAN-2013	✓	20-DEC-2012	01-JAN-2013	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) T29P, T31P, TZP, TZB	T30P, T32P, TZR,	18-DEC-2012	19-DEC-2012	01-JAN-2013	✓	20-DEC-2012	01-JAN-2013	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) T29P, T31P, TZP, TZB	T30P, T32P, TZR,	18-DEC-2012	19-DEC-2012	01-JAN-2013	✓	20-DEC-2012	01-JAN-2013	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) T29P, T31P, TZP, TZB	T30P, T32P, TZR,	18-DEC-2012	19-DEC-2012	01-JAN-2013	✓	20-DEC-2012	01-JAN-2013	✓
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM)) T29P, T31P, TZP, TZB	T30P, T32P, TZR,	18-DEC-2012	20-DEC-2012	25-DEC-2012	✓	21-DEC-2012	29-JAN-2013	✓
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) T29P, T31P, TZP, TZB	T30P, T32P, TZR,	18-DEC-2012	19-DEC-2012	01-JAN-2013	✓	20-DEC-2012	01-JAN-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
Amber VOC Vial - Sulfuric Acid (EP080) T29P, T31P, TZP, TZB	T30P, T32P, TZR,	18-DEC-2012	19-DEC-2012	01-JAN-2013	✓	20-DEC-2012	01-JAN-2013	✓



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	
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Amber Glass Bottle - Unpreserved (EP130) T29P, T31P, TZP, TZB	T30P, T32P, TZR,	18-DEC-2012	23-DEC-2012	25-DEC-2012	✓	02-JAN-2013	11-FEB-2013	✓
EP131A: Organochlorine Pesticides								
Amber Glass Bottle - Unpreserved (EP131A) T29P, T31P, TZP, TZB	T30P, T32P, TZR,	18-DEC-2012	23-DEC-2012	25-DEC-2012	✓	02-JAN-2013	11-FEB-2013	✓
EP131B: Polychlorinated Biphenyls (as Aroclors)								
Amber Glass Bottle - Unpreserved (EP131B) T29P, T31P, TZP, TZB	T30P, T32P, TZR,	18-DEC-2012	23-DEC-2012	25-DEC-2012	✓	02-JAN-2013	11-FEB-2013	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP132-LL) T29P, T31P, TZP, TZB	T30P, T32P, TZR,	18-DEC-2012	24-DEC-2012	25-DEC-2012	✓	31-DEC-2012	02-FEB-2013	✓
EP201: Carbamate Pesticides by LCMS								
Amber Glass Bottle - Unpreserved (EP201) T29P, T31P, TZP, TZB	T30P, T32P, TZR,	18-DEC-2012	----	----	----	24-DEC-2012	25-DEC-2012	✓
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
Amber Glass Bottle - Unpreserved (EP202-SL) T29P, T31P, TZP, TZB	T30P, T32P, TZR,	18-DEC-2012	----	----	----	20-DEC-2012	25-DEC-2012	✓



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(where) 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	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Ammonia as N by Discrete analyser	EK055G	2	15	13.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	7	14.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	1	7	14.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Cations - Total	ED093T	1	7	14.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	16	12.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organochlorine Pesticides (Ultra-trace)	EP131A	2	13	15.4	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organophosphorus Pesticides (Ultra-trace)	EP130	2	12	16.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH Compounds in Water	EP132-LL	2	15	13.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	2	12	16.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	7	14.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	15	13.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfide as S2-	EK085	2	15	13.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	4	25	16.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	19	10.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	6	16.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	1	6	16.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	2	18	11.1	9.5	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	2	18	11.1	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	4	25	16.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	15	13.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Acids as CH3COOH	EP045	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	11	18.2	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	7	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	1	7	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	16	6.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organochlorine Pesticides (Ultra-trace)	EP131A	1	13	7.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organophosphorus Pesticides (Ultra-trace)	EP130	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH Compounds in Water	EP132-LL	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	11.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	7	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Control Samples (LCS) - Continued							
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfide as S2-	EK085	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	4	25	16.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	6	16.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	1	6	16.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	18	5.6	4.8	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	18	5.6	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	4	25	16.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Acids as CH3COOH	EP045	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	7	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	1	7	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Cations - Total	ED093T	1	7	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	16	6.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organochlorine Pesticides (Ultra-trace)	EP131A	1	13	7.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organophosphorus Pesticides (Ultra-trace)	EP130	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH Compounds in Water	EP132-LL	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	11.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	7	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfide as S2-	EK085	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	25	8.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	6	16.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	1	6	16.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	18	5.6	4.8	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	18	5.6	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	2	25	8.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Acids as CH3COOH	EP045	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	15	6.7	5.0	✓	ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	7	14.3	5.0	✓	ALS QCS3 requirement
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	1	7	14.3	5.0	✓	ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	16	6.3	5.0	✓	ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	20	5.0	5.0	✓	ALS QCS3 requirement
Organochlorine Pesticides (Ultra-trace)	EP131A	1	13	7.7	5.0	✓	ALS QCS3 requirement
Organophosphorus Pesticides (Ultra-trace)	EP130	1	12	8.3	5.0	✓	ALS QCS3 requirement
PAH Compounds in Water	EP132-LL	1	15	6.7	5.0	✓	ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	1	12	8.3	5.0	✓	ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	7	14.3	5.0	✓	ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	6.7	5.0	✓	ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	5.0	5.0	✓	ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	25	8.0	5.0	✓	ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	18	5.6	4.8	✓	ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	2	25	8.0	5.0	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	15	6.7	5.0	✓	ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	11	9.1	5.0	✓	ALS QCS3 requirement



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
Major Cations - Total	ED093T	WATER	APHA 21st ed., 3120; USEPA SW 846 - 6010 Samples are digested by USEPA 3005 prior to analysis. The ICPAES technique ionises the sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(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 SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	WATER	APHA 21st ed., 3500 Cr-A & B. Hexavalent chromium is determined directly on water sample by Discrete Analyser as received by pH adjustment and colour development using dephenylcarbazine. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um 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 (1999) Schedule B(3) (Appdx. 2)
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um 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 (1999) Schedule B(3) (Appdx. 2)
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um 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 (1999) Schedule B(3) (Appdx. 2)
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um 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 (1999) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
Total Cyanide by Segmented Flow Analyser	EK026SF	WATER	APHA 4500-CN-O. Sodium hydroxide preserved samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Ammonia as N by Discrete analyser	EK055G	WATER	APHA 21st ed., 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrite as N by Discrete Analyser	EK057G	WATER	APHA 21st ed., 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrate as N by Discrete Analyser	EK058G	WATER	APHA 21st ed., 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	APHA 21st ed., 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 (1999) Schedule B(3) (Appdx. 2)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	APHA 21st ed., 4500-Norg D. 25mL water samples are digested using a traditional Kjeldahl digestion followed by determination by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	APHA 21st ed., 4500-Norg / 4500-NO3-. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	APHA 21st ed., 4500-P B&F This procedure involves sulphuric acid digestion of a 100mL sample 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 (1999) Schedule B(3) (Appdx. 2)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	APHA 21st ed., 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with orthophosphate 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 (1999) Schedule B(3) (Appdx. 2)
Sulfide as S2-	EK085	WATER	APHA 21st ed., 4500-S2- D Sulfide species present in water samples are immediately precipitated when collected in pretreated caustic/zinc acetate preserved sample containers. After the supernatant is discarded, the resultant precipitate is then coloured using methylene blue indicator and measured using UV-VIS detection at 664nm. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Enterococci analysis (Water)	ENT-WAT	WATER	Enterococci analysis of water matrices conducted by Subcontracting Laboratory
Volatile Acids as CH3COOH	EP045	WATER	APHA 21st ed., 5560 C, Steam distillable acids are captured in caustic solution and determined titrimetrically. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	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 (1999) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds	EP074	WATER	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. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	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 (1999) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	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 NEPM (1999) Schedule B(3) (Appdx. 2)
Organophosphorus Pesticides (Ultra-trace)	EP130	WATER	USEPA Method 3640 (GPC cleanup), 8141 (GC/FPD - Capillary Column) This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Organochlorine Pesticides (Ultra-trace)	EP131A	WATER	USEPA Method 3640 (GPC cleanup),3620 (Florasil), 8081/8082 (GC/uECD/uECD). This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
PCB's (Ultra-trace)	EP131B	WATER	USEPA Method 3640 (GPC cleanup),3620 (Florasil), 8081/8082 (GC/uECD/uECD). This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
PAH Compounds in Water	EP132-LL	WATER	8270 GCMS, LVI, Capillary column, SIM mode. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Carbamate Pesticides by LCMS	EP201	WATER	In-house LCMS (Electrospray in positive mode). Residues of carbamates in water are concentrated on a solid phase extraction cartridge. The compounds are then eluted with 10%methanol in MTBE. The extract is evaporated to nearly dryness and reconstituted in HPLC mobile phase for LC/MS determination.
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	WATER	In-House, LCMS (Electrospray in negative mode). After adding surrogate and acetic acid, water samples are injected on a C18 column for LC/MS determination.
Faecal Coliforms (Water)	FCF-WAT	WATER	Faecal Coliform analysis of water matrices conducted by Subcontracting Laboratory
Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Digestion for Total Recoverable Metals - ORC	EN25-ORC	WATER	Modified 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 (1999) Schedule B(3) (Appdx. 2)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 500 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 (1999) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Sep. Funnel Extraction /Acetylation of Phenolic Compounds	ORG14-AC	WATER	USEPA 3510 (Extraction)/ In-house (Acetylation): A 1L sample is extracted into dichloromethane and concentrated to 1 mL with exchange into cyclohexane. Phenolic compounds are reacted with acetic anhydride to yield phenyl acetates suitable for ultra-trace analysis. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.

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<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Sep. Funnel Extraction of Liquids (Ultra-trace pesticides.)	ORG14-UTP	WATER	USEPA 3510 Samples are extracted into dichloromethane, concentrated and exchanged into an appropriate solvent for GPC and florisil cleanup as required. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

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							
EP132B: Polynuclear Aromatic Hydrocarbons	3159896-002	----	Phenanthrene	85-01-8	117 %	74.8-112%	Recovery greater than upper control limit
Matrix Spike (MS) Recoveries							
EG050T: Total Hexavalent Chromium	EP1210564-001	T29P	Hexavalent Chromium	18540-29-9	64.5 %	70-130%	Recovery less than lower data quality objective
EP202A: Phenoxyacetic Acid Herbicides by LCMS	EP1210564-001	T29P	Clopyralid	1702-17-6	37.7 %	77-145%	Recovery less than lower data quality objective

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

Regular Sample Surrogates

Sub-Matrix: **PORE WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP132T: Base/Neutral Extractable Surrogates	EP1210564-003	T31P	2-Fluorobiphenyl	321-60-8	114 %	57.6-113 %	Recovery greater than upper data quality objective
EP132T: Base/Neutral Extractable Surrogates	EP1210564-007	TZB	2-Fluorobiphenyl	321-60-8	114 %	57.6-113 %	Recovery greater than upper data quality objective
EP132T: Base/Neutral Extractable Surrogates	EP1210564-004	T32P	2-Fluorobiphenyl	321-60-8	118 %	57.6-113 %	Recovery greater than upper data quality objective
EP132T: Base/Neutral Extractable Surrogates	EP1210564-006	TZR	2-Fluorobiphenyl	321-60-8	115 %	57.6-113 %	Recovery greater than upper data quality objective

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **WATER**

Method	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EG035T: Total Recoverable Mercury by FIMS						



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
EG035T: Total Recoverable Mercury by FIMS - Analysis Holding Time Compliance						
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified T29P, T30P, T31P, T32P, TZP, TZR, TZB	----	----	----	04-JAN-2013	01-JAN-2013	3

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

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

QUALITY CONTROL REPORT

Work Order	: EP1210564	Page	: 1 of 28
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: JOSH ABBOTT	Contact	: Scott James
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Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: 112147	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Burswood Stadium	Date Samples Received	: 18-DEC-2012
C-O-C number	: ----	Issue Date	: 09-JAN-2013
Sampler	: JA/AJ	No. of samples received	: 7
Order number	: ----	No. of samples analysed	: 7
Quote number	: EP/689/12 V4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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



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.

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



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compliance with
ISO/IEC 17025.

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Agnes Szilagyi	Senior Organic Chemist	Perth Organics
Alex Rossi	Organic Chemist	Sydney Organics
Benjamin Nicholson	Metals Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics
Edwandy Fadjjar	Organic Coordinator	Sydney Organics
Gaston Allende	R&D Chemist	Sydney Organics
Sarah Millington	Senior Inorganic Chemist	Sydney Inorganics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



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 (%)
ED093T: Total Major Cations (QC Lot: 2656437)									
EP1210564-001	T29P	ED093T: Magnesium	7439-95-4	1	mg/L	884	896	1.4	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2672199)									
EN1204903-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP1210564-006	TZR	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG050T: Total Hexavalent Chromium (QC Lot: 2656898)									
EP1210564-001	T29P	EG050G-T: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 2670920)									
EP1210463-001	Anonymous	EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	8.4	8.8	5.3	0% - 20%
		EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Lead	7439-92-1	0.2	µg/L	4.0	4.2	4.5	0% - 20%
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	1.0	1.0	0.0	No Limit
		EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-T: Manganese	7439-96-5	0.5	µg/L	54.5	55.4	1.6	0% - 20%
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	1.0	1.1	10.5	No Limit
		EG093A-T: Copper	7440-50-8	1	µg/L	9	9	0.0	No Limit
		EG093A-T: Boron	7440-42-8	100	µg/L	3070	3140	2.2	0% - 20%
		EG093A-T: Aluminium	7429-90-5	5	µg/L	104	121	15.5	0% - 20%
		EG093A-T: Tin	7440-31-5	5	µg/L	<5	<5	0.0	No Limit
EP1210463-015	Anonymous	EG093A-T: Zinc	7440-66-6	5	µg/L	107	111	3.5	0% - 20%
		EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	10.1	9.8	2.4	0% - 20%
		EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Lead	7439-92-1	0.2	µg/L	7.8	7.3	6.5	0% - 20%
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	5.4	5.5	2.8	0% - 50%
		EG093A-T: Chromium	7440-47-3	0.5	µg/L	17.2	16.7	3.1	0% - 20%
		EG093A-T: Manganese	7439-96-5	0.5	µg/L	436	437	0.3	0% - 20%
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	5.8	5.8	0.0	0% - 50%
		EG093A-T: Copper	7440-50-8	1	µg/L	8	8	0.0	No Limit
		EG093A-T: Boron	7440-42-8	100	µg/L	3170	3260	2.9	0% - 20%
		EG093A-T: Aluminium	7429-90-5	5	µg/L	7850	7970	1.6	0% - 20%
EG093A-T: Tin	7440-31-5	5	µg/L	<5	<5	0.0	No Limit		
EG093A-T: Zinc	7440-66-6	5	µg/L	13	14	0.0	No Limit		
EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 2670921)									
EP1210463-001	Anonymous	EG093B-T: Selenium	7782-49-2	2	µg/L	<2	<2	0.0	No Limit
		EG093B-T: Iron	7439-89-6	5	µg/L	199	217	8.6	0% - 20%
EP1210463-015	Anonymous	EG093B-T: Selenium	7782-49-2	2	µg/L	<2	<2	0.0	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: 2670921) - continued									
EP1210463-015	Anonymous	EG093B-T: Iron	7439-89-6	5	µg/L	16900	16500	2.6	0% - 20%
EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 2662521)									
EP1210463-009	Anonymous	EG094A-T: Cadmium	7440-43-9	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EG094A-T: Lead	7439-92-1	0.1	µg/L	0.1	<0.1	0.0	No Limit
		EG094A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-T: Arsenic	7440-38-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-T: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-T: Tin	7440-31-5	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-T: Copper	7440-50-8	0.5	µg/L	0.6	0.7	0.0	No Limit
		EG094A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG094A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG094A-T: Zinc	7440-66-6	1	µg/L	2	<1	0.0	No Limit
		EG094A-T: Aluminium	7429-90-5	5	µg/L	<5	<5	0.0	No Limit
EG094A-T: Boron	7440-42-8	5	µg/L	<5	<5	0.0	No Limit		
EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 2662522)									
EP1210463-009	Anonymous	EG094B-T: Selenium	7782-49-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094B-T: Iron	7439-89-6	2	µg/L	<2	<2	0.0	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 2659579)									
EP1210564-001	T29P	EK026SF: Total Cyanide	57-12-5	0.004	mg/L	<0.004	<0.004	0.0	No Limit
EP1210608-003	Anonymous	EK026SF: Total Cyanide	57-12-5	0.004	mg/L	70.2	71.6	2.0	0% - 20%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 2657557)									
EP1210564-001	T29P	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	1.06	1.13	6.5	0% - 20%
EP1210574-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.12	0.12	0.0	0% - 50%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 2656444)									
EP1210564-001	T29P	EK057G: Nitrite as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP1210567-001	Anonymous	EK057G: Nitrite as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 2657556)									
EP1210560-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.53	0.52	0.0	0% - 20%
EP1210564-007	TZB	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 2660656)									
EP1210463-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.7	0.8	0.0	No Limit
EP1210463-011	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	0.1	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 2660658)									
EP1210564-004	T32P	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	2.1	2.0	0.0	0% - 20%
EP1210571-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.5	0.5	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 2660657)									
EP1210463-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.06	0.06	0.0	No Limit
EP1210463-011	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	0.0	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: 2660659)									
EP1210564-004	T32P	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.38	0.38	0.0	0% - 20%
EP1210571-002	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.05	<0.05	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 2656445)									
EP1210564-001	T29P	EK071G: Reactive Phosphorus as P	----	0.01	mg/L	0.10	0.10	0.0	0% - 50%
EP1210571-002	Anonymous	EK071G: Reactive Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK085M: Sulfide as S2- (QC Lot: 2658292)									
EP1210532-001	Anonymous	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EP1210564-006	TZR	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EP045: Volatile Acids as CH3COOH (QC Lot: 2665408)									
EP1210463-001	Anonymous	EP045: Volatile Acids as Acetic Acid	----	5	mg/L	75	75	0.0	0% - 50%
EP1210463-011	Anonymous	EP045: Volatile Acids as Acetic Acid	----	5	mg/L	30	30	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2656463)									
EP1210564-001	T29P	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
EP1210573-004	Anonymous	EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 2656463)									
EP1210564-001	T29P	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP1210573-004	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	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 (%)
EP074C: Sulfonated Compounds (QC Lot: 2656463)									
EP1210564-001	T29P	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP1210573-004	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 2656463)									
EP1210564-001	T29P	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP1210573-004	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2656463)									
EP1210564-001	T29P	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	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 (%)
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2656463) - continued									
EP1210564-001	T29P	EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP1210573-004	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 2656463)									
EP1210564-001	T29P	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	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 (%)	
EP074F: Halogenated Aromatic Compounds (QC Lot: 2656463) - continued										
EP1210573-004	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit			
EP074G: Trihalomethanes (QC Lot: 2656463)										
EP1210564-001	T29P	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
EP1210573-004	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Dibromochloromethane	124-48-1	5	µg/L	10	8	17.7	No Limit	
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit	
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2656464)										
EP1210564-001	T29P	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP1210573-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2656464)										
EP1210564-001	T29P	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP1210573-004	Anonymous	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080: BTEXN (QC Lot: 2656464)										
EP1210564-001	T29P	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit	
EP1210573-004	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit	
		EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit			
EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit			
EP130A: Organophosphorus Pesticides (Ultra-trace) (QC Lot: 2663668)										



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 (%)
EP130A: Organophosphorus Pesticides (Ultra-trace) (QC Lot: 2663668) - continued									
EP1210601-009	Anonymous	EP130: Chlorpyrifos	2921-88-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP130: Bromophos-ethyl	4824-78-6	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Carbophenothion	786-19-6	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Chlorfenvinphos (Z)	18708-87-7	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Chlorpyrifos-methyl	5598-13-0	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Demeton-S-methyl	919-86-8	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Diazinon	333-41-5	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Dichlorvos	62-73-7	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Dimethoate	60-51-5	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Ethion	563-12-2	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Fenamiphos	22224-92-6	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Fenthion	55-38-9	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Malathion	121-75-5	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Azinphos Methyl	86-50-0	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Monocrotophos	6923-22-4	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Parathion	56-38-2	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Parathion-methyl	298-00-0	0.10	µg/L	<0.10	<0.10	0.0	No Limit
EP130: Pirimphos-ethyl	23505-41-1	0.10	µg/L	<0.10	<0.10	0.0	No Limit		
EP130: Prothiofos	34643-46-4	0.10	µg/L	<0.10	<0.10	0.0	No Limit		
EP1210601-007	Anonymous	EP130: Chlorpyrifos	2921-88-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP130: Bromophos-ethyl	4824-78-6	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Carbophenothion	786-19-6	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Chlorfenvinphos (Z)	18708-87-7	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Chlorpyrifos-methyl	5598-13-0	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Demeton-S-methyl	919-86-8	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Diazinon	333-41-5	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Dichlorvos	62-73-7	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Dimethoate	60-51-5	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Ethion	563-12-2	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Fenamiphos	22224-92-6	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Fenthion	55-38-9	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Malathion	121-75-5	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Azinphos Methyl	86-50-0	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Monocrotophos	6923-22-4	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Parathion	56-38-2	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP130: Parathion-methyl	298-00-0	0.10	µg/L	<0.10	<0.10	0.0	No Limit
EP130: Pirimphos-ethyl	23505-41-1	0.10	µg/L	<0.10	<0.10	0.0	No Limit		
EP130: Prothiofos	34643-46-4	0.10	µg/L	<0.10	<0.10	0.0	No Limit		
EP131A: Organochlorine Pesticides (QC Lot: 2663667)									
EP1210601-009	Anonymous	EP131A: Heptachlor	76-44-8	0.005	µg/L	<0.005	<0.005	0.0	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 (%)
EP131A: Organochlorine Pesticides (QC Lot: 2663667) - continued									
EP1210601-009	Anonymous	EP131A: Aldrin	309-00-2	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: alpha-BHC	319-84-6	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: beta-BHC	319-85-7	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: delta-BHC	319-86-8	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: 4.4'-DDD	72-54-8	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: 4.4'-DDE	72-55-9	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: 4.4'-DDT	50-29-3	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Dieldrin	60-57-1	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: alpha-Endosulfan	959-98-8	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: beta-Endosulfan	33213-65-9	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Endosulfan sulfate	1031-07-8	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Endrin	72-20-8	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Endosulfan (sum)	115-29-7	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Endrin aldehyde	7421-93-4	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Endrin ketone	53494-70-5	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Heptachlor epoxide	1024-57-3	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: gamma-BHC	58-89-9	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Methoxychlor	72-43-5	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: cis-Chlordane	5103-71-9	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: trans-Chlordane	5103-74-2	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Total Chlordane (sum)	----	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Sum of DDD + DDE + DDT	----	0.010	µg/L	<0.010	<0.010	0.0	No Limit
EP1210601-007	Anonymous	EP131A: Heptachlor	76-44-8	0.005	µg/L	<0.005	<0.005	0.0	No Limit
		EP131A: Aldrin	309-00-2	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: alpha-BHC	319-84-6	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: beta-BHC	319-85-7	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: delta-BHC	319-86-8	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: 4.4'-DDD	72-54-8	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: 4.4'-DDE	72-55-9	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: 4.4'-DDT	50-29-3	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Dieldrin	60-57-1	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: alpha-Endosulfan	959-98-8	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: beta-Endosulfan	33213-65-9	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Endosulfan sulfate	1031-07-8	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Endrin	72-20-8	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Endosulfan (sum)	115-29-7	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Endrin aldehyde	7421-93-4	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Endrin ketone	53494-70-5	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Heptachlor epoxide	1024-57-3	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L	<0.010	<0.010	0.0	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 (%)
EP131A: Organochlorine Pesticides (QC Lot: 2663667) - continued									
EP1210601-007	Anonymous	EP131A: gamma-BHC	58-89-9	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Methoxychlor	72-43-5	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: cis-Chlordane	5103-71-9	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: trans-Chlordane	5103-74-2	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Total Chlordane (sum)	----	0.010	µg/L	<0.010	<0.010	0.0	No Limit
		EP131A: Sum of DDD + DDE + DDT	----	0.010	µg/L	<0.010	<0.010	0.0	No Limit
EP131B: Polychlorinated Biphenyls (as Aroclors) (QC Lot: 2663669)									
EP1210601-009	Anonymous	EP131B: Total Polychlorinated biphenyls	----	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP131B: Aroclor 1016	12674-11-2	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP131B: Aroclor 1221	11104-28-2	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP131B: Aroclor 1232	11141-16-5	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP131B: Aroclor 1242	53469-21-9	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP131B: Aroclor 1248	12672-29-6	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP131B: Aroclor 1254	11097-69-1	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP131B: Aroclor 1260	11096-82-5	0.10	µg/L	<0.10	<0.10	0.0	No Limit
EP1210601-007	Anonymous	EP131B: Total Polychlorinated biphenyls	----	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP131B: Aroclor 1016	12674-11-2	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP131B: Aroclor 1221	11104-28-2	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP131B: Aroclor 1232	11141-16-5	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP131B: Aroclor 1242	53469-21-9	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP131B: Aroclor 1248	12672-29-6	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP131B: Aroclor 1254	11097-69-1	0.10	µg/L	<0.10	<0.10	0.0	No Limit
		EP131B: Aroclor 1260	11096-82-5	0.10	µg/L	<0.10	<0.10	0.0	No Limit
EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2663653)									
EP1210560-001	Anonymous	EP132-LL: Benzo(a)pyrene	50-32-8	0.005	µg/L	<0.005	<0.005	0.0	No Limit
		EP132-LL: Total PAH	----	0.005	µg/L	0.060	0.040	40.0	No Limit
		EP132-LL: Naphthalene	91-20-3	0.02	µg/L	0.06	0.04	49.1	No Limit
		EP132-LL: Acenaphthylene	208-96-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Acenaphthene	83-32-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Fluorene	86-73-7	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Phenanthrene	85-01-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Anthracene	120-12-7	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Fluoranthene	206-44-0	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Pyrene	129-00-0	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Benz(a)anthracene	56-55-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Chrysene	218-01-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Benzo(b)fluoranthene	205-99-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Benzo(k)fluoranthene	207-08-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Indeno(1.2.3.cd)pyrene	193-39-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Dibenz(a,h)anthracene	53-70-3	0.02	µg/L	<0.02	<0.02	0.0	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 (%)
EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2663653) - continued									
EP1210560-001	Anonymous	EP132-LL: Benzo(g,h,i)perylene	191-24-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP1210644-001	Anonymous	EP132-LL: Benzo(a)pyrene	50-32-8	0.005	µg/L	<0.005	<0.005	0.0	No Limit
		EP132-LL: Total PAH	----	0.005	µg/L	0.040	0.030	28.6	No Limit
		EP132-LL: Naphthalene	91-20-3	0.02	µg/L	0.04	0.03	0.0	No Limit
		EP132-LL: Acenaphthylene	208-96-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Acenaphthene	83-32-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Fluorene	86-73-7	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Phenanthrene	85-01-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Anthracene	120-12-7	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Fluoranthene	206-44-0	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Pyrene	129-00-0	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Benz(a)anthracene	56-55-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Chrysene	218-01-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Benzo(b)fluoranthene	205-99-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Benzo(k)fluoranthene	207-08-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Indeno(1.2.3.cd)pyrene	193-39-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP132-LL: Dibenz(a,h)anthracene	53-70-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP132-LL: Benzo(g,h,i)perylene	191-24-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit		
EP201: Carbamate Pesticides by LCMS (QC Lot: 2658158)									
EP1210564-001	T29P	EP201: Oxamyl	23135-22-0	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Methomyl	16752-77-5	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: 3-Hydroxy Carbofuran	16655-82-6	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Aldicarb	116-06-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Bendiocarb	22781-23-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Thiodicarb	59669-26-0	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Carbofuran	1563-66-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Carbaryl	63-25-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Methiocarb	2032-65-7	0.2	µg/L	<0.2	<0.2	0.0	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2658153)									
EP1210564-001	T29P	EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2,4-DB	94-82-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPA	94-74-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2,4-DP	120-36-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2,4-D	94-75-7	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2,4,5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2,4,5-T	93-76-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPB	94-81-5	10	µg/L	<10	<10	0.0	No Limit

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 Work Order : EP1210564
 Client : RPS ENVIRONMENT PTY LTD
 Project : I12147



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 (%)
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2658153) - continued									
EP1210564-001	T29P	EP202-SL: Picloram	1918-02-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.6-D	575-90-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.6-T	575-89-3	10	µg/L	<10	<10	0.0	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 Sample (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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
ED093T: Total Major Cations (QCLot: 2656437)									
ED093T: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2672199)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	102	71	119	
EG050T: Total Hexavalent Chromium (QCLot: 2656898)									
EG050G-T: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.5 mg/L	99.4	90	114	
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2670920)									
EG093A-T: Aluminium	7429-90-5	10	µg/L	<10	50 µg/L	108	81	127	
EG093A-T: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	104	89	125	
EG093A-T: Boron	7440-42-8	100	µg/L	<100	----	----	----	----	
EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	103	78	112	
EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	108	86	126	
EG093A-T: Copper	7440-50-8	1	µg/L	<1	10 µg/L	106	87	123	
EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	104	89	121	
EG093A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	105	91	121	
EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	106	90	126	
EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	111	85	125	
EG093A-T: Tin	7440-31-5	5	µg/L	<5	10 µg/L	105	93	130	
EG093A-T: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	104	82	128	
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2670921)									
EG093B-T: Selenium	7782-49-2	2	µg/L	<2	10 µg/L	114	75	133	
EG093B-T: Iron	7439-89-6	5	µg/L	<5	50 µg/L	109	78	132	
EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 2662521)									
EG094A-T: Aluminium	7429-90-5	5	µg/L	<5	50 µg/L	103	84	132	
EG094A-T: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	94.6	81	125	
EG094A-T: Boron	7440-42-8	5	µg/L	<5	10 µg/L	119	70	130	
EG094A-T: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	96.2	76	120	
EG094A-T: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	103	79	127	
EG094A-T: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	94.7	79	129	
EG094A-T: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	107	75	127	
EG094A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	102	80	126	
EG094A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	96.4	88	126	
EG094A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	98.4	82	124	
EG094A-T: Tin	7440-31-5	0.2	µg/L	<0.2	10 µg/L	102	87	121	
EG094A-T: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	91.1	81	131	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 2662522)									
EG094B-T: Iron	7439-89-6	2	µg/L	<2	50 µg/L	96.9	83	129	
EG094B-T: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	93.3	78	124	
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2659579)									
EK026SF: Total Cyanide	57-12-5	0.004	mg/L	<0.004	0.2 mg/L	99.3	80	127	
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2657557)									
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	95.7	87	115	
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2656444)									
EK057G: Nitrite as N	----	0.01	mg/L	<0.01	0.5 mg/L	102	86	112	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2657556)									
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	101	92	112	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2660656)									
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	91.9	74	130	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2660658)									
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	86.4	74	130	
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2660657)									
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	99.9	70	130	
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2660659)									
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	90.5	70	130	
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2656445)									
EK071G: Reactive Phosphorus as P	----	0.01	mg/L	<0.01	0.5 mg/L	99.8	87	115	
EK085M: Sulfide as S2- (QCLot: 2658292)									
EK085: Sulfide as S2-	18496-25-8	0.10	mg/L	<0.1	0.50 mg/L	106	82	116	
EP045: Volatile Acids as CH3COOH (QCLot: 2665408)									
EP045: Volatile Acids as Acetic Acid	----	5	mg/L	<5	200 mg/L	102	91	115	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2656463)									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	98.0	74	124	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	88.0	75	121	
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	86.1	72	122	
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	82.5	73	121	
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	80.7	72	122	
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	86.5	74	122	
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	86.8	73	121	
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	80.7	73	123	
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	92.4	70	126	
EP074B: Oxygenated Compounds (QCLot: 2656463)									
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	88.5	61	135	
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	109	66	130	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074B: Oxygenated Compounds (QCLot: 2656463) - continued									
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	96.0	72	126	
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	100	70	126	
EP074C: Sulfonated Compounds (QCLot: 2656463)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	77.0	71	127	
EP074D: Fumigants (QCLot: 2656463)									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	89.5	71	129	
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	90.6	74	124	
EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	91.9	73	127	
EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	93.6	70	130	
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	81.9	74	124	
EP074E: Halogenated Aliphatic Compounds (QCLot: 2656463)									
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	91.5	70	130	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	87.5	73	125	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	91.4	72	128	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	90.5	73	127	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	95.0	74	124	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	91.1	72	130	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	83.2	73	129	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	87.4	42	142	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	85.0	72	126	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	81.3	73	125	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	85.6	76	122	
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	86.0	76	124	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	88.3	74	124	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	86.5	73	129	
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	94.4	76	126	
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	82.7	75	125	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	90.1	75	127	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	87.3	74	122	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	92.5	72	128	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	84.6	74	124	
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	----	----	----	----	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	102	54	142	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	85.2	61	135	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	91.6	66	132	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	84.8	66	130	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	84.9	66	134	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	82.1	56	140	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	84.6	66	134	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP074F: Halogenated Aromatic Compounds (QCLot: 2656463)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	90.6	78	120	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	88.3	76	122	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	87.3	75	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	95.0	74	122	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	88.9	75	121	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	92.6	75	121	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	93.7	76	122	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	106	68	132	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	95.0	72	128	
EP074G: Trihalomethanes (QCLot: 2656463)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	86.5	75	125	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	88.2	73	129	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	84.7	68	132	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	80.5	67	133	
EP075(SIM)A: Phenolic Compounds (QCLot: 2657300)									
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	25 µg/L	35.7	17.9	56	
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	25 µg/L	77.1	42	104	
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	25 µg/L	71.7	36	104	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	50 µg/L	66.2	37	95	
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	25 µg/L	83.0	37	115	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	1	µg/L	<1.0	25 µg/L	76.9	37	117	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	1	µg/L	<1.0	25 µg/L	81.1	38	116	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	1	µg/L	<1.0	25 µg/L	78.2	36	110	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	1	µg/L	<1.0	25 µg/L	80.6	37	117	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1	µg/L	<1.0	25 µg/L	82.4	29	117	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1	µg/L	<1.0	25 µg/L	81.7	36	120	
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	25 µg/L	89.5	5.4	155	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2656464)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	320 µg/L	99.8	74.2	142	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2657299)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	65.4	30.7	123	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	400 µg/L	63.9	34	142	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	62.3	32	124	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2656464)									
EP080: C6 - C10 Fraction	----	20	µg/L	<20	370 µg/L	99.3	74.2	142	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2657299)									
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	400 µg/L	66.7	32	126	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	600 µg/L	64.8	32	136	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2657299) - continued									
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	200 µg/L	40.4	28.3	142	
EP080: BTEXN (QCLot: 2656464)									
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	93.3	72.6	122	
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	83.2	71.1	123	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	85.8	71.9	121	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	40 µg/L	85.6	72.3	122	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	84.7	72.3	121	
EP080: Naphthalene	91-20-3	5	µg/L	<5	20 µg/L	89.3	78.8	121	
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2663668)									
EP130: Bromophos-ethyl	4824-78-6	0.10	µg/L	<0.10	1.0 µg/L	91.8	40	128	
EP130: Carbophenothion	786-19-6	0.10	µg/L	<0.10	1.0 µg/L	82.6	61	127	
EP130: Chlorfenvinphos (Z)	18708-87-7	0.10	µg/L	<0.10	1.0 µg/L	102	69	135	
EP130: Chlorpyrifos	2921-88-2	0.05	µg/L	<0.05	1.0 µg/L	88.6	58	138	
EP130: Chlorpyrifos-methyl	5598-13-0	0.10	µg/L	<0.10	1.0 µg/L	78.6	59	127	
EP130: Demeton-S-methyl	919-86-8	0.10	µg/L	<0.10	1.0 µg/L	73.0	49	143	
EP130: Diazinon	333-41-5	0.10	µg/L	<0.10	1.0 µg/L	95.6	64	120	
EP130: Dichlorvos	62-73-7	0.10	µg/L	<0.10	1.0 µg/L	89.3	38	122	
EP130: Dimethoate	60-51-5	0.10	µg/L	<0.10	1.0 µg/L	109	50	134	
EP130: Ethion	563-12-2	0.10	µg/L	<0.10	1.0 µg/L	97.7	60	128	
EP130: Fenamiphos	22224-92-6	0.10	µg/L	<0.10	1.0 µg/L	89.5	54	138	
EP130: Fenthion	55-38-9	0.10	µg/L	<0.10	1.0 µg/L	103	56	128	
EP130: Malathion	121-75-5	0.10	µg/L	<0.10	1.0 µg/L	104	59	136	
EP130: Azinphos Methyl	86-50-0	0.10	µg/L	<0.10	1.0 µg/L	87.8	34	148	
EP130: Monocrotophos	6923-22-4	0.10	µg/L	<0.10	1.0 µg/L	14.4	12.1	86.3	
EP130: Parathion	56-38-2	0.10	µg/L	<0.10	1.0 µg/L	102	62	140	
EP130: Parathion-methyl	298-00-0	0.10	µg/L	<0.10	1.0 µg/L	96.0	53	139	
EP130: Pirimphos-ethyl	23505-41-1	0.10	µg/L	<0.10	1.0 µg/L	77.6	52	128	
EP130: Prothiofos	34643-46-4	0.10	µg/L	<0.10	1.0 µg/L	93.4	55	127	
EP131A: Organochlorine Pesticides (QCLot: 2663667)									
EP131A: Aldrin	309-00-2	0.001	µg/L	----	0.1 µg/L	113	35.8	139	
		0.01	µg/L	<0.010	----	----	----	----	
EP131A: alpha-BHC	319-84-6	0.001	µg/L	----	0.1 µg/L	104	19.7	153	
		0.01	µg/L	<0.010	----	----	----	----	
EP131A: beta-BHC	319-85-7	0.001	µg/L	----	0.1 µg/L	114	43.8	136	
		0.01	µg/L	<0.010	----	----	----	----	
EP131A: delta-BHC	319-86-8	0.001	µg/L	----	0.1 µg/L	105	37.4	144	
		0.01	µg/L	<0.010	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP131A: Organochlorine Pesticides (QCLot: 2663667) - continued									
EP131A: 4,4'-DDD	72-54-8	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	77.8 ----	37.5 ----	145 ----	
EP131A: 4,4'-DDE	72-55-9	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	78.4 ----	30.5 ----	146 ----	
EP131A: 4,4'-DDT	50-29-3	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	115 ----	31 ----	151 ----	
EP131A: Dieldrin	60-57-1	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	62.9 ----	34.4 ----	145 ----	
EP131A: alpha-Endosulfan	959-98-8	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	92.7 ----	30.2 ----	141 ----	
EP131A: beta-Endosulfan	33213-65-9	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	94.0 ----	30.3 ----	148 ----	
EP131A: Endosulfan sulfate	1031-07-8	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	84.7 ----	19.1 ----	150 ----	
EP131A: Endrin	72-20-8	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	102 ----	13 ----	165 ----	
EP131A: Endosulfan (sum)	115-29-7	0.01	µg/L	<0.010	----	----	----	----	
EP131A: Endrin aldehyde	7421-93-4	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	65.8 ----	28.3 ----	134 ----	
EP131A: Endrin ketone	53494-70-5	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	74.8 ----	15.1 ----	146 ----	
EP131A: Heptachlor	76-44-8	0.001 0.005	µg/L µg/L	---- <0.005	0.1 µg/L ----	84.1 ----	33.2 ----	148 ----	
EP131A: Heptachlor epoxide	1024-57-3	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	91.6 ----	36 ----	143 ----	
EP131A: Hexachlorobenzene (HCB)	118-74-1	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	119 ----	14 ----	146 ----	
EP131A: gamma-BHC	58-89-9	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	107 ----	27.2 ----	147 ----	
EP131A: Methoxychlor	72-43-5	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	89.4 ----	34.4 ----	150 ----	
EP131A: cis-Chlordane	5103-71-9	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	72.6 ----	15.4 ----	152 ----	
EP131A: trans-Chlordane	5103-74-2	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	80.9 ----	45.1 ----	140 ----	
EP131A: Total Chlordane (sum)	----	0.01	µg/L	<0.010	----	----	----	----	
EP131A: Sum of DDD + DDE + DDT	----	0.01	µg/L	<0.010	----	----	----	----	
EP131B: Polychlorinated Biphenyls (as Aroclors) (QCLot: 2663669)									
EP131B: Total Polychlorinated biphenyls	----	0.1	µg/L	<0.10	----	----	----	----	
EP131B: Aroclor 1016	12674-11-2	0.1	µg/L	<0.10	----	----	----	----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
EP131B: Polychlorinated Biphenyls (as Aroclors) (QCLot: 2663669) - continued								
EP131B: Aroclor 1221	11104-28-2	0.1	µg/L	<0.10	----	----	----	----
EP131B: Aroclor 1232	11141-16-5	0.1	µg/L	<0.10	----	----	----	----
EP131B: Aroclor 1242	53469-21-9	0.1	µg/L	<0.10	----	----	----	----
EP131B: Aroclor 1248	12672-29-6	0.1	µg/L	<0.10	----	----	----	----
EP131B: Aroclor 1254	11097-69-1	0.1	µg/L	<0.10	1.00 µg/L	90.0	61.6	123
EP131B: Aroclor 1260	11096-82-5	0.1	µg/L	<0.10	----	----	----	----
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2663653)								
EP132-LL: Naphthalene	91-20-3	0.02	µg/L	<0.02	0.025 µg/L	112	68.3	116
EP132-LL: Acenaphthylene	208-96-8	0.02	µg/L	<0.02	0.025 µg/L	105	72.4	112
EP132-LL: Acenaphthene	83-32-9	0.02	µg/L	<0.02	0.025 µg/L	101	73.2	111
EP132-LL: Fluorene	86-73-7	0.02	µg/L	<0.02	0.025 µg/L	113	72.9	114
EP132-LL: Phenanthrene	85-01-8	0.02	µg/L	<0.02	0.025 µg/L	# 117	74.8	112
EP132-LL: Anthracene	120-12-7	0.02	µg/L	<0.02	0.025 µg/L	97.2	73.4	113
EP132-LL: Fluoranthene	206-44-0	0.02	µg/L	<0.02	0.025 µg/L	115	74.8	117
EP132-LL: Pyrene	129-00-0	0.02	µg/L	<0.02	0.025 µg/L	114	74.1	117
EP132-LL: Benz(a)anthracene	56-55-3	0.02	µg/L	<0.02	0.025 µg/L	107	73.6	114
EP132-LL: Chrysene	218-01-9	0.02	µg/L	<0.02	0.025 µg/L	86.2	69.6	120
EP132-LL: Benzo(b)fluoranthene	205-99-2	0.02	µg/L	<0.02	0.025 µg/L	102	71.4	119
EP132-LL: Benzo(k)fluoranthene	207-08-9	0.02	µg/L	<0.02	0.025 µg/L	110	74.8	118
EP132-LL: Benzo(a)pyrene	50-32-8	0.005	µg/L	<0.005	0.025 µg/L	98.4	75.2	117
EP132-LL: Indeno(1.2.3.cd)pyrene	193-39-5	0.02	µg/L	<0.02	0.025 µg/L	98.8	67.8	119
EP132-LL: Dibenz(a,h)anthracene	53-70-3	0.02	µg/L	<0.02	0.025 µg/L	100	71.5	117
EP132-LL: Benzo(g,h,i)perylene	191-24-2	0.02	µg/L	<0.02	0.025 µg/L	93.2	66.6	121
EP132-LL: Total PAH	----	0.005	µg/L	<0.005	----	----	----	----
EP201: Carbamate Pesticides by LCMS (QCLot: 2658158)								
EP201: Oxamyl	23135-22-0	0.2	µg/L	<0.2	1.0 µg/L	115	78.3	144
EP201: Methomyl	16752-77-5	0.2	µg/L	<0.2	1.0 µg/L	127	59.9	137
EP201: 3-Hydroxy Carbofuran	16655-82-6	0.2	µg/L	<0.2	1.0 µg/L	109	61.1	143
EP201: Aldicarb	116-06-3	0.2	µg/L	<0.2	1.0 µg/L	68.3	52	128
EP201: Bendiocarb	22781-23-3	0.2	µg/L	<0.2	1.0 µg/L	98.1	70.2	132
EP201: Thiodicarb	59669-26-0	0.2	µg/L	<0.2	1.0 µg/L	91.5	52	144
EP201: Carbofuran	1563-66-2	0.2	µg/L	<0.2	1.0 µg/L	113	65	151
EP201: Carbaryl	63-25-2	0.2	µg/L	<0.2	1.0 µg/L	102	57	151
EP201: Methiocarb	2032-65-7	0.2	µg/L	<0.2	1.0 µg/L	113	58	148
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2658153)								
EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	100 µg/L	133	82	136
EP202-SL: 2,4-DB	94-82-6	10	µg/L	<10	100 µg/L	139	65	147
EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	100 µg/L	133	83	137
EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	100 µg/L	136	75	143



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
					Concentration	LCS	Low	High
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2658153) - continued								
EP202-SL: MCPA	94-74-6	10	µg/L	<10	100 µg/L	136	76	140
EP202-SL: 2.4-DP	120-36-5	10	µg/L	<10	100 µg/L	136	76	144
EP202-SL: 2.4-D	94-75-7	10	µg/L	<10	100 µg/L	130	77	139
EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	100 µg/L	132	77	141
EP202-SL: 2.4.5-TP (Silvex)	93-72-1	10	µg/L	<10	100 µg/L	133	75	143
EP202-SL: 2.4.5-T	93-76-5	10	µg/L	<10	100 µg/L	128	78	140
EP202-SL: MCPB	94-81-5	10	µg/L	<10	100 µg/L	136	69.2	139
EP202-SL: Picloram	1918-02-1	10	µg/L	<10	100 µg/L	128	76	144
EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	100 µg/L	137	77	145
EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	100 µg/L	132	77	145
EP202-SL: 2.6-D	575-90-6	10	µg/L	<10	----	----	----	----
EP202-SL: 2.4.6-T	575-89-3	10	µg/L	<10	----	----	----	----

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	Spike Recovery (%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2672199)							
EN1204903-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	73.1	70	130
EG050T: Total Hexavalent Chromium (QCLot: 2656898)							
EP1210564-001	T29P	EG050G-T: Hexavalent Chromium	18540-29-9	0.5 mg/L	# 64.5	70	130
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2670920)							
EP1210463-002	Anonymous	EG093A-T: Arsenic	7440-38-2	50 µg/L	106	70	130
		EG093A-T: Cadmium	7440-43-9	12.5 µg/L	101	70	130
		EG093A-T: Chromium	7440-47-3	50 µg/L	113	70	130
		EG093A-T: Copper	7440-50-8	50 µg/L	106	70	130
		EG093A-T: Lead	7439-92-1	50 µg/L	99.2	70	130
		EG093A-T: Manganese	7439-96-5	50 µg/L	111	70	130
		EG093A-T: Nickel	7440-02-0	50 µg/L	104	70	130
		EG093A-T: Zinc	7440-66-6	50 µg/L	109	70	130
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2659579)							
EP1210564-001	T29P	EK026SF: Total Cyanide	57-12-5	0.2 mg/L	75.8	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2657557)							
EP1210564-001	T29P	EK055G: Ammonia as N	7664-41-7	1.00 mg/L	88.2	70	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%) Low High
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2656444)							
EP1210564-001	T29P		EK057G: Nitrite as N	----	0.6 mg/L	88.7	70 130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2657556)							
EP1210560-001	Anonymous		EK059G: Nitrite + Nitrate as N	----	0.6 mg/L	79.3	70 130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2660656)							
EP1210463-001	Anonymous		EK061G: Total Kjeldahl Nitrogen as N	----	5.0 mg/L	84.5	70 130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2660658)							
EP1210564-004	T32P		EK061G: Total Kjeldahl Nitrogen as N	----	5.0 mg/L	90.7	70 130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2660657)							
EP1210463-001	Anonymous		EK067G: Total Phosphorus as P	----	1 mg/L	96.8	70 130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2660659)							
EP1210564-004	T32P		EK067G: Total Phosphorus as P	----	1 mg/L	92.0	70 130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2656445)							
EP1210564-001	T29P		EK071G: Reactive Phosphorus as P	----	0.5 mg/L	101	70 130
EP074E: Halogenated Aliphatic Compounds (QCLot: 2656463)							
EP1210564-002	T30P		EP074: 1,1-Dichloroethene	75-35-4	20 µg/L	92.5	73.7 126
			EP074: Trichloroethene	79-01-6	20 µg/L	102	79.1 120
EP074F: Halogenated Aromatic Compounds (QCLot: 2656463)							
EP1210564-002	T30P		EP074: Chlorobenzene	108-90-7	20 µg/L	101	81.4 115
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2656464)							
EP1210564-002	T30P		EP080: C6 - C9 Fraction	----	280 µg/L	103	77.0 137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2656464)							
EP1210564-002	T30P		EP080: C6 - C10 Fraction	----	330 µg/L	102	77.0 137
EP080: BTEXN (QCLot: 2656464)							
EP1210564-002	T30P		EP080: Benzene	71-43-2	20 µg/L	98.5	77.0 122
			EP080: Toluene	108-88-3	20 µg/L	110	73.5 126
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2663668)							
EP1210564-002	T30P		EP130: Bromophos-ethyl	4824-78-6	1.0 µg/L	84.8	40 128
			EP130: Carbophenothion	786-19-6	1.0 µg/L	112	61 127
			EP130: Chlorfenvinphos (Z)	18708-87-7	1.0 µg/L	94.8	69 135
			EP130: Chlorpyrifos	2921-88-2	1.0 µg/L	84.3	58 138
			EP130: Chlorpyrifos-methyl	5598-13-0	1.0 µg/L	82.0	59 127
			EP130: Demeton-S-methyl	919-86-8	1.0 µg/L	95.4	49 143
			EP130: Diazinon	333-41-5	1.0 µg/L	103	64 120
			EP130: Dichlorvos	62-73-7	1.0 µg/L	89.5	38 122
			EP130: Dimethoate	60-51-5	1.0 µg/L	105	50 134



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
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2663668) - continued							
EP1210564-002	T30P	EP130: Ethion	563-12-2	1.0 µg/L	87.9	60	128
		EP130: Fenamiphos	22224-92-6	1.0 µg/L	97.0	54	138
		EP130: Fenthion	55-38-9	1.0 µg/L	102	56	128
		EP130: Malathion	121-75-5	1.0 µg/L	100	59	136
		EP130: Azinphos Methyl	86-50-0	1.0 µg/L	111	34	148
		EP130: Monocrotophos	6923-22-4	1.0 µg/L	25.2	12.1	86.3
		EP130: Parathion	56-38-2	1.0 µg/L	105	62	140
		EP130: Parathion-methyl	298-00-0	1.0 µg/L	95.8	53	139
		EP130: Pirimphos-ethyl	23505-41-1	1.0 µg/L	86.9	52	128
		EP130: Prothiofos	34643-46-4	1.0 µg/L	84.8	55	127
EP131A: Organochlorine Pesticides (QCLot: 2663667)							
EP1210564-002	T30P	EP131A: Aldrin	309-00-2	0.1 µg/L	121	35.8	139
		EP131A: alpha-BHC	319-84-6	0.1 µg/L	117	19.7	153
		EP131A: beta-BHC	319-85-7	0.1 µg/L	101	43.8	136
		EP131A: delta-BHC	319-86-8	0.1 µg/L	84.4	37.4	144
		EP131A: 4,4'-DDD	72-54-8	0.1 µg/L	83.2	37.5	145
		EP131A: 4,4'-DDE	72-55-9	0.1 µg/L	92.9	30.5	146
		EP131A: 4,4'-DDT	50-29-3	0.1 µg/L	77.0	31	151
		EP131A: Dieldrin	60-57-1	0.1 µg/L	97.9	34.4	145
		EP131A: alpha-Endosulfan	959-98-8	0.1 µg/L	118	30.2	141
		EP131A: beta-Endosulfan	33213-65-9	0.1 µg/L	121	30.3	148
		EP131A: Endosulfan sulfate	1031-07-8	0.1 µg/L	102	19.1	150
		EP131A: Endrin	72-20-8	0.1 µg/L	109	13	165
		EP131A: Endrin aldehyde	7421-93-4	0.1 µg/L	81.1	28.3	134
		EP131A: Endrin ketone	53494-70-5	0.1 µg/L	113	15.1	146
		EP131A: Heptachlor	76-44-8	0.1 µg/L	87.2	33.2	148
		EP131A: Heptachlor epoxide	1024-57-3	0.1 µg/L	84.9	36	143
		EP131A: Hexachlorobenzene (HCB)	118-74-1	0.1 µg/L	84.6	14	146
		EP131A: gamma-BHC	58-89-9	0.1 µg/L	86.5	27.2	147
		EP131A: Methoxychlor	72-43-5	0.1 µg/L	86.0	34.4	150
		EP131A: cis-Chlordane	5103-71-9	0.1 µg/L	112	15.4	152
EP131A: trans-Chlordane	5103-74-2	0.1 µg/L	91.2	45.1	140		
EP131B: Polychlorinated Biphenyls (as Aroclors) (QCLot: 2663669)							
EP1210564-003	T31P	EP131B: Aroclor 1254	11097-69-1	1 µg/L	78.0	61.6	123
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2663653)							
EP1210560-002	Anonymous	EP132-LL: Naphthalene	91-20-3	0.025 µg/L	97.3	70	130
		EP132-LL: Acenaphthylene	208-96-8	0.025 µg/L	97.3	70	130
		EP132-LL: Acenaphthene	83-32-9	0.025 µg/L	86.6	70	130
		EP132-LL: Fluorene	86-73-7	0.025 µg/L	90.1	70	130



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2663653) - continued							
EP1210560-002	Anonymous	EP132-LL: Phenanthrene	85-01-8	0.025 µg/L	102	70	130
		EP132-LL: Anthracene	120-12-7	0.025 µg/L	106	70	130
		EP132-LL: Fluoranthene	206-44-0	0.025 µg/L	109	70	130
		EP132-LL: Pyrene	129-00-0	0.025 µg/L	113	70	130
		EP132-LL: Benz(a)anthracene	56-55-3	0.025 µg/L	115	70	130
		EP132-LL: Chrysene	218-01-9	0.025 µg/L	104	70	130
		EP132-LL: Benzo(b)fluoranthene	205-99-2	0.025 µg/L	105	70	130
		EP132-LL: Benzo(k)fluoranthene	207-08-9	0.025 µg/L	107	70	130
		EP132-LL: Benzo(a)pyrene	50-32-8	0.025 µg/L	107	70	130
		EP132-LL: Indeno(1.2.3.cd)pyrene	193-39-5	0.025 µg/L	92.3	70	130
		EP132-LL: Dibenz(a,h)anthracene	53-70-3	0.025 µg/L	89.6	70	130
		EP132-LL: Benzo(g,h,i)perylene	191-24-2	0.025 µg/L	111	70	130
EP201: Carbamate Pesticides by LCMS (QCLot: 2658158)							
EP1210564-002	T30P	EP201: Oxamyl	23135-22-0	1.0 µg/L	83.6	60	130
		EP201: Methomyl	16752-77-5	1.0 µg/L	129	60	130
		EP201: 3-Hydroxy Carbofuran	16655-82-6	1.0 µg/L	89.4	60	130
		EP201: Aldicarb	116-06-3	1.0 µg/L	79.1	52	128
		EP201: Bendiocarb	22781-23-3	1.0 µg/L	62.6	60	130
		EP201: Thiodicarb	59669-26-0	1.0 µg/L	76.6	52	144
		EP201: Carbofuran	1563-66-2	1.0 µg/L	97.4	65	151
		EP201: Carbaryl	63-25-2	1.0 µg/L	77.2	57	151
		EP201: Methiocarb	2032-65-7	1.0 µg/L	67.3	58	148
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2658153)							
EP1210564-001	T29P	EP202-SL: Mecoprop	93-65-2	100 µg/L	119	75	143
		EP202-SL: MCPA	94-74-6	100 µg/L	120	76	140
		EP202-SL: 2,4-D	94-75-7	100 µg/L	117	77	139
		EP202-SL: Triclopyr	55335-06-3	100 µg/L	111	77	141
		EP202-SL: 2,4,5-T	93-76-5	100 µg/L	118	78	140
		EP202-SL: Picloram	1918-02-1	100 µg/L	87.2	76	144
		EP202-SL: Clopyralid	1702-17-6	100 µg/L	# 37.7	77	145

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2656444)										



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2656444) - continued										
EP1210564-001	T29P	EK057G: Nitrite as N	----	0.6 mg/L	88.7	----	70	130	----	----
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2656445)										
EP1210564-001	T29P	EK071G: Reactive Phosphorus as P	----	0.5 mg/L	101	----	70	130	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 2656463)										
EP1210564-002	T30P	EP074: 1,1-Dichloroethene	75-35-4	20 µg/L	92.5	----	73.7	126	----	----
		EP074: Trichloroethene	79-01-6	20 µg/L	102	----	79.1	120	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 2656463)										
EP1210564-002	T30P	EP074: Chlorobenzene	108-90-7	20 µg/L	101	----	81.4	115	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2656464)										
EP1210564-002	T30P	EP080: C6 - C9 Fraction	----	280 µg/L	103	----	77.0	137	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2656464)										
EP1210564-002	T30P	EP080: C6 - C10 Fraction	----	330 µg/L	102	----	77.0	137	----	----
EP080: BTEXN (QCLot: 2656464)										
EP1210564-002	T30P	EP080: Benzene	71-43-2	20 µg/L	98.5	----	77.0	122	----	----
		EP080: Toluene	108-88-3	20 µg/L	110	----	73.5	126	----	----
EG050T: Total Hexavalent Chromium (QCLot: 2656898)										
EP1210564-001	T29P	EG050G-T: Hexavalent Chromium	18540-29-9	0.5 mg/L	# 64.5	----	70	130	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2657556)										
EP1210560-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.6 mg/L	79.3	----	70	130	----	----
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2657557)										
EP1210564-001	T29P	EK055G: Ammonia as N	7664-41-7	1.00 mg/L	88.2	----	70	130	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2658153)										
EP1210564-001	T29P	EP202-SL: Mecoprop	93-65-2	100 µg/L	119	----	75	143	----	----
		EP202-SL: MCPA	94-74-6	100 µg/L	120	----	76	140	----	----
		EP202-SL: 2,4-D	94-75-7	100 µg/L	117	----	77	139	----	----
		EP202-SL: Triclopyr	55335-06-3	100 µg/L	111	----	77	141	----	----
		EP202-SL: 2,4,5-T	93-76-5	100 µg/L	118	----	78	140	----	----
		EP202-SL: Picloram	1918-02-1	100 µg/L	87.2	----	76	144	----	----
		EP202-SL: Clopyralid	1702-17-6	100 µg/L	# 37.7	----	77	145	----	----
EP201: Carbamate Pesticides by LCMS (QCLot: 2658158)										
EP1210564-002	T30P	EP201: Oxamyl	23135-22-0	1.0 µg/L	83.6	----	60	130	----	----
		EP201: Methomyl	16752-77-5	1.0 µg/L	129	----	60	130	----	----
		EP201: 3-Hydroxy Carbofuran	16655-82-6	1.0 µg/L	89.4	----	60	130	----	----
		EP201: Aldicarb	116-06-3	1.0 µg/L	79.1	----	52	128	----	----
		EP201: Bendiocarb	22781-23-3	1.0 µg/L	62.6	----	60	130	----	----
		EP201: Thiodicarb	59669-26-0	1.0 µg/L	76.6	----	52	144	----	----
		EP201: Carbofuran	1563-66-2	1.0 µg/L	97.4	----	65	151	----	----



Sub-Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP201: Carbamate Pesticides by LCMS (QCLot: 2658158) - continued										
EP1210564-002	T30P	EP201: Carbaryl	63-25-2	1.0 µg/L	77.2	----	57	151	----	----
		EP201: Methiocarb	2032-65-7	1.0 µg/L	67.3	----	58	148	----	----
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2659579)										
EP1210564-001	T29P	EK026SF: Total Cyanide	57-12-5	0.2 mg/L	75.8	----	70	130	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2660656)										
EP1210463-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5.0 mg/L	84.5	----	70	130	----	----
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2660657)										
EP1210463-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	96.8	----	70	130	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2660658)										
EP1210564-004	T32P	EK061G: Total Kjeldahl Nitrogen as N	----	5.0 mg/L	90.7	----	70	130	----	----
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2660659)										
EP1210564-004	T32P	EK067G: Total Phosphorus as P	----	1 mg/L	92.0	----	70	130	----	----
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2663653)										
EP1210560-002	Anonymous	EP132-LL: Naphthalene	91-20-3	0.025 µg/L	97.3	----	70	130	----	----
		EP132-LL: Acenaphthylene	208-96-8	0.025 µg/L	97.3	----	70	130	----	----
		EP132-LL: Acenaphthene	83-32-9	0.025 µg/L	86.6	----	70	130	----	----
		EP132-LL: Fluorene	86-73-7	0.025 µg/L	90.1	----	70	130	----	----
		EP132-LL: Phenanthrene	85-01-8	0.025 µg/L	102	----	70	130	----	----
		EP132-LL: Anthracene	120-12-7	0.025 µg/L	106	----	70	130	----	----
		EP132-LL: Fluoranthene	206-44-0	0.025 µg/L	109	----	70	130	----	----
		EP132-LL: Pyrene	129-00-0	0.025 µg/L	113	----	70	130	----	----
		EP132-LL: Benz(a)anthracene	56-55-3	0.025 µg/L	115	----	70	130	----	----
		EP132-LL: Chrysene	218-01-9	0.025 µg/L	104	----	70	130	----	----
		EP132-LL: Benzo(b)fluoranthene	205-99-2	0.025 µg/L	105	----	70	130	----	----
		EP132-LL: Benzo(k)fluoranthene	207-08-9	0.025 µg/L	107	----	70	130	----	----
		EP132-LL: Benzo(a)pyrene	50-32-8	0.025 µg/L	107	----	70	130	----	----
		EP132-LL: Indeno(1.2.3.cd)pyrene	193-39-5	0.025 µg/L	92.3	----	70	130	----	----
		EP132-LL: Dibenz(a,h)anthracene	53-70-3	0.025 µg/L	89.6	----	70	130	----	----
		EP132-LL: Benzo(g,h,i)perylene	191-24-2	0.025 µg/L	111	----	70	130	----	----
EP131A: Organochlorine Pesticides (QCLot: 2663667)										
EP1210564-002	T30P	EP131A: Aldrin	309-00-2	0.1 µg/L	121	----	35.8	139	----	----
		EP131A: alpha-BHC	319-84-6	0.1 µg/L	117	----	19.7	153	----	----
		EP131A: beta-BHC	319-85-7	0.1 µg/L	101	----	43.8	136	----	----
		EP131A: delta-BHC	319-86-8	0.1 µg/L	84.4	----	37.4	144	----	----
		EP131A: 4,4'-DDD	72-54-8	0.1 µg/L	83.2	----	37.5	145	----	----
		EP131A: 4,4'-DDE	72-55-9	0.1 µg/L	92.9	----	30.5	146	----	----
		EP131A: 4,4'-DDT	50-29-3	0.1 µg/L	77.0	----	31	151	----	----
		EP131A: Dieldrin	60-57-1	0.1 µg/L	97.9	----	34.4	145	----	----



Sub-Matrix: WATER

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP131A: Organochlorine Pesticides (QCLot: 2663667) - continued										
EP1210564-002	T30P	EP131A: alpha-Endosulfan	959-98-8	0.1 µg/L	118	----	30.2	141	----	----
		EP131A: beta-Endosulfan	33213-65-9	0.1 µg/L	121	----	30.3	148	----	----
		EP131A: Endosulfan sulfate	1031-07-8	0.1 µg/L	102	----	19.1	150	----	----
		EP131A: Endrin	72-20-8	0.1 µg/L	109	----	13	165	----	----
		EP131A: Endrin aldehyde	7421-93-4	0.1 µg/L	81.1	----	28.3	134	----	----
		EP131A: Endrin ketone	53494-70-5	0.1 µg/L	113	----	15.1	146	----	----
		EP131A: Heptachlor	76-44-8	0.1 µg/L	87.2	----	33.2	148	----	----
		EP131A: Heptachlor epoxide	1024-57-3	0.1 µg/L	84.9	----	36	143	----	----
		EP131A: Hexachlorobenzene (HCB)	118-74-1	0.1 µg/L	84.6	----	14	146	----	----
		EP131A: gamma-BHC	58-89-9	0.1 µg/L	86.5	----	27.2	147	----	----
		EP131A: Methoxychlor	72-43-5	0.1 µg/L	86.0	----	34.4	150	----	----
		EP131A: cis-Chlordane	5103-71-9	0.1 µg/L	112	----	15.4	152	----	----
		EP131A: trans-Chlordane	5103-74-2	0.1 µg/L	91.2	----	45.1	140	----	----
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2663668)										
EP1210564-002	T30P	EP130: Bromophos-ethyl	4824-78-6	1.0 µg/L	84.8	----	40	128	----	----
		EP130: Carbophenothion	786-19-6	1.0 µg/L	112	----	61	127	----	----
		EP130: Chlorfenvinphos (Z)	18708-87-7	1.0 µg/L	94.8	----	69	135	----	----
		EP130: Chlorpyrifos	2921-88-2	1.0 µg/L	84.3	----	58	138	----	----
		EP130: Chlorpyrifos-methyl	5598-13-0	1.0 µg/L	82.0	----	59	127	----	----
		EP130: Demeton-S-methyl	919-86-8	1.0 µg/L	95.4	----	49	143	----	----
		EP130: Diazinon	333-41-5	1.0 µg/L	103	----	64	120	----	----
		EP130: Dichlorvos	62-73-7	1.0 µg/L	89.5	----	38	122	----	----
		EP130: Dimethoate	60-51-5	1.0 µg/L	105	----	50	134	----	----
		EP130: Ethion	563-12-2	1.0 µg/L	87.9	----	60	128	----	----
		EP130: Fenamiphos	22224-92-6	1.0 µg/L	97.0	----	54	138	----	----
		EP130: Fenthion	55-38-9	1.0 µg/L	102	----	56	128	----	----
		EP130: Malathion	121-75-5	1.0 µg/L	100	----	59	136	----	----
		EP130: Azinphos Methyl	86-50-0	1.0 µg/L	111	----	34	148	----	----
		EP130: Monocrotophos	6923-22-4	1.0 µg/L	25.2	----	12.1	86.3	----	----
		EP130: Parathion	56-38-2	1.0 µg/L	105	----	62	140	----	----
		EP130: Parathion-methyl	298-00-0	1.0 µg/L	95.8	----	53	139	----	----
		EP130: Pirimphos-ethyl	23505-41-1	1.0 µg/L	86.9	----	52	128	----	----
		EP130: Prothiofos	34643-46-4	1.0 µg/L	84.8	----	55	127	----	----
EP131B: Polychlorinated Biphenyls (as Aroclors) (QCLot: 2663669)										
EP1210564-003	T31P	EP131B: Aroclor 1254	11097-69-1	1 µg/L	78.0	----	61.6	123	----	----
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2670920)										
EP1210463-002	Anonymous	EG093A-T: Arsenic	7440-38-2	50 µg/L	106	----	70	130	----	----
		EG093A-T: Cadmium	7440-43-9	12.5 µg/L	101	----	70	130	----	----
		EG093A-T: Chromium	7440-47-3	50 µg/L	113	----	70	130	----	----



Sub-Matrix: **WATER**

				<i>Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report</i>						
<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>Spike</i>	<i>Spike Recovery (%)</i>		<i>Recovery Limits (%)</i>		<i>RPDs (%)</i>	
				<i>Concentration</i>	<i>MS</i>	<i>MSD</i>	<i>Low</i>	<i>High</i>	<i>Value</i>	<i>Control Limit</i>
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2670920) - continued										
EP1210463-002	Anonymous	EG093A-T: Copper	7440-50-8	50 µg/L	106	----	70	130	----	----
		EG093A-T: Lead	7439-92-1	50 µg/L	99.2	----	70	130	----	----
		EG093A-T: Manganese	7439-96-5	50 µg/L	111	----	70	130	----	----
		EG093A-T: Nickel	7440-02-0	50 µg/L	104	----	70	130	----	----
		EG093A-T: Zinc	7440-66-6	50 µg/L	109	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2672199)										
EN1204903-002	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	73.1	----	70	130	----	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: EP1210564	Page	: 1 of 21
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: JOSH ABBOTT	Contact	: Scott James
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: josh.abbott@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: I12147	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 18-DEC-2012
Sampler	: JA/AJ	Issue Date	: 09-JAN-2013
Site	: Burswood Stadium		
Quote number	: EP/689/12 V4	No. of samples received	: 7
		No. of samples analysed	: 7

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



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.

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

- **EG050G: Poor metal matrix spike recoveries due to matrix effects. Spike has been confirmed by re-analysis**
- **EP202: Poor matrix spike recovery for compound Clopyralid due to matrix interference. Confirmed by re-extraction and re-analysis.**



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

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

Signatories	Position	Accreditation Category
Agnes Szilagyi	Senior Organic Chemist	Perth Organics
Alex Rossi	Organic Chemist	Sydney Organics
Benjamin Nicholson	Metals Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Gaston Allende	R&D Chemist	Sydney Organics
Sarah Millington	Senior Inorganic Chemist	Sydney Inorganics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				T29P	T30P	T31P	T32P	TZP
				18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00
Compound	CAS Number	LOR	Unit	EP1210564-001	EP1210564-002	EP1210564-003	EP1210564-004	EP1210564-005
ED093T: Total Major Cations								
Magnesium	7439-95-4	1	mg/L	884	944	1000	961	887
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG050T: Total Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EG093T: Total Metals in Saline Water by ORC-ICPMS								
Aluminium	7429-90-5	5	µg/L	1930	518	15200	8550	2060
Selenium	7782-49-2	2	µg/L	<2	<2	<2	<2	<2
Iron	7439-89-6	5	µg/L	4420	813	21200	12600	4690
Arsenic	7440-38-2	0.5	µg/L	4.2	2.4	10.2	4.8	4.5
Boron	7440-42-8	100	µg/L	3080	3270	3370	3290	3070
Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.4	0.2	<0.2
Chromium	7440-47-3	0.5	µg/L	5.9	1.2	37.2	22.3	6.2
Copper	7440-50-8	1	µg/L	11	4	55	31	12
Lead	7439-92-1	0.2	µg/L	14.7	5.8	112	51.9	15.7
Manganese	7439-96-5	0.5	µg/L	148	229	544	481	156
Molybdenum	7439-98-7	0.1	µg/L	10.6	9.2	11.5	9.5	11.1
Nickel	7440-02-0	0.5	µg/L	3.5	1.5	14.1	9.2	3.3
Tin	7440-31-5	5	µg/L	<5	<5	6	<5	<5
Zinc	7440-66-6	5	µg/L	43	18	275	160	64
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	1.06	1.54	3.82	1.38	1.15
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	----	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	1.4	1.2	6.3	2.1	1.4
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)

Client sample ID

				T29P	T30P	T31P	T32P	TZP
				18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00
Compound	CAS Number	LOR	Unit	EP1210564-001	EP1210564-002	EP1210564-003	EP1210564-004	EP1210564-005
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser - Continued								
^ Total Nitrogen as N	----	0.1	mg/L	1.4	1.2	6.3	2.1	1.4
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.18	0.18	0.86	0.38	0.18
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	----	0.01	mg/L	0.10	0.16	0.44	0.15	0.10
EK085M: Sulfide as S2-								
Sulfide as S2-	18496-25-8	0.1	mg/L	----	<0.1	----	----	<0.1
EP045: Volatile Acids as CH3COOH								
Volatile Acids as Acetic Acid	----	5	mg/L	----	90	----	----	90
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				T29P	T30P	T31P	T32P	TZP
				18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00
Compound	CAS Number	LOR	Unit	EP1210564-001	EP1210564-002	EP1210564-003	EP1210564-004	EP1210564-005
EP074E: Halogenated Aliphatic Compounds - Continued								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				T29P	T30P	T31P	T32P	TZP
				18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00
Compound	CAS Number	LOR	Unit	EP1210564-001	EP1210564-002	EP1210564-003	EP1210564-004	EP1210564-005
EP074F: Halogenated Aromatic Compounds - Continued								
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-Methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.02	µg/L	0.03	0.51	0.05	0.04	0.04
Acenaphthylene	208-96-8	0.02	µg/L	<0.02	<0.04	0.07	0.06	0.04
Acenaphthene	83-32-9	0.02	µg/L	<0.02	<0.04	<0.04	<0.02	<0.02
Fluorene	86-73-7	0.02	µg/L	<0.02	<0.04	<0.04	<0.02	<0.02
Phenanthrene	85-01-8	0.02	µg/L	<0.02	0.09	0.06	0.04	0.04
Anthracene	120-12-7	0.02	µg/L	<0.02	<0.04	<0.04	0.03	<0.02
Fluoranthene	206-44-0	0.02	µg/L	0.05	0.06	0.16	0.12	0.11
Pyrene	129-00-0	0.02	µg/L	0.09	0.20	0.31	0.22	0.16
Benz(a)anthracene	56-55-3	0.02	µg/L	0.03	<0.04	0.09	0.08	0.06
Chrysene	218-01-9	0.02	µg/L	0.03	0.04	0.10	0.07	0.06



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				T29P	T30P	T31P	T32P	TZP
				18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00
Compound	CAS Number	LOR	Unit	EP1210564-001	EP1210564-002	EP1210564-003	EP1210564-004	EP1210564-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(b)fluoranthene	205-99-2	0.02	µg/L	0.04	<0.04	0.12	0.12	0.08
Benzo(k)fluoranthene	207-08-9	0.02	µg/L	<0.02	<0.04	0.05	0.04	0.03
Benzo(a)pyrene	50-32-8	0.005	µg/L	0.047	<0.040	0.144	0.125	0.086
Indeno(1.2.3.cd)pyrene	193-39-5	0.02	µg/L	0.02	0.04	0.07	0.06	0.04
Dibenz(a,h)anthracene	53-70-3	0.02	µg/L	<0.02	<0.04	<0.04	<0.02	<0.02
Benzo(g,h,i)perylene	191-24-2	0.02	µg/L	0.03	<0.04	0.09	0.07	0.06
^ Total PAH	----	0.005	µg/L	0.367	0.940	1.31	1.08	0.806
^ Benzo(a)pyrene TEQ (WHO)	----	0.005	µg/L	0.057	<0.005	0.179	0.156	0.108
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	60	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	60	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	----	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	140	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	140	<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
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Carbophenothion	786-19-6	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				T29P	T30P	T31P	T32P	TZP
				18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00
Compound	CAS Number	LOR	Unit	EP1210564-001	EP1210564-002	EP1210564-003	EP1210564-004	EP1210564-005
EP130A: Organophosphorus Pesticides (Ultra-trace) - Continued								
Chlorfenvinphos (Z)	18708-87-7	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Chlorpyrifos	2921-88-2	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Demeton-S-methyl	919-86-8	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Diazinon	333-41-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Dichlorvos	62-73-7	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Dimethoate	60-51-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Ethion	563-12-2	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Fenamiphos	22224-92-6	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Fenthion	55-38-9	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Malathion	121-75-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Azinphos Methyl	86-50-0	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Monocrotophos	6923-22-4	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Parathion	56-38-2	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Parathion-methyl	298-00-0	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Pirimphos-ethyl	23505-41-1	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Prothiofos	34643-46-4	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
EP131A: Organochlorine Pesticides								
Aldrin	309-00-2	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
alpha-BHC	319-84-6	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
beta-BHC	319-85-7	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
delta-BHC	319-86-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
4.4'-DDD	72-54-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
4.4'-DDE	72-55-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
4.4'-DDT	50-29-3	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
^ Sum of DDD + DDE + DDT	----	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Dieldrin	60-57-1	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
alpha-Endosulfan	959-98-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
beta-Endosulfan	33213-65-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endosulfan sulfate	1031-07-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
^ Endosulfan (sum)	115-29-7	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endrin	72-20-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endrin aldehyde	7421-93-4	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endrin ketone	53494-70-5	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				T29P	T30P	T31P	T32P	TZP
				18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00
Compound	CAS Number	LOR	Unit	EP1210564-001	EP1210564-002	EP1210564-003	EP1210564-004	EP1210564-005
EP131A: Organochlorine Pesticides - Continued								
Heptachlor	76-44-8	0.005	µg/L	<0.005	<0.005	0.011	0.017	<0.005
Heptachlor epoxide	1024-57-3	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
gamma-BHC	58-89-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Methoxychlor	72-43-5	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
cis-Chlordane	5103-71-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
trans-Chlordane	5103-74-2	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
^ Total Chlordane (sum)	----	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Oxychlordane	27304-13-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
EP131B: Polychlorinated Biphenyls (as Aroclors)								
Total Polychlorinated biphenyls	----	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1016	12674-11-2	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1221	11104-28-2	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1232	11141-16-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1242	53469-21-9	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1248	12672-29-6	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1254	11097-69-1	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1260	11096-82-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
EP201: Carbamate Pesticides by LCMS								
Oxamyl	23135-22-0	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methomyl	16752-77-5	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
3-Hydroxy Carbofuran	16655-82-6	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Aldicarb	116-06-3	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Bendiocarb	22781-23-3	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Thiodicarb	59669-26-0	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Carbofuran	1563-66-2	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Carbaryl	63-25-2	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methiocarb	2032-65-7	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	<10	<10	<10
2,4-DB	94-82-6	10	µg/L	<10	<10	<10	<10	<10
Dicamba	1918-00-9	10	µg/L	<10	<10	<10	<10	<10
Mecoprop	93-65-2	10	µg/L	<10	<10	<10	<10	<10



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				T29P	T30P	T31P	T32P	TZP
				18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00
Compound	CAS Number	LOR	Unit	EP1210564-001	EP1210564-002	EP1210564-003	EP1210564-004	EP1210564-005
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued								
MCPA	94-74-6	10	µg/L	<10	<10	<10	<10	<10
2,4-DP	120-36-5	10	µg/L	<10	<10	<10	<10	<10
2,4-D	94-75-7	10	µg/L	<10	<10	<10	<10	<10
Triclopyr	55335-06-3	10	µg/L	<10	<10	<10	<10	<10
2,4,5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	<10	<10	<10
2,4,5-T	93-76-5	10	µg/L	<10	<10	<10	<10	<10
MCPB	94-81-5	10	µg/L	<10	<10	<10	<10	<10
Picloram	1918-02-1	10	µg/L	<10	<10	<10	<10	<10
Clopyralid	1702-17-6	10	µg/L	<10	<10	<10	<10	<10
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	<10	<10	<10
2,6-D	575-90-6	10	µg/L	<10	<10	<10	<10	<10
2,4,6-T	575-89-3	10	µg/L	<10	<10	<10	<10	<10
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	88.0	91.2	97.9	99.1	81.2
Toluene-D8	2037-26-5	0.1	%	101	100	99.5	97.5	103
4-Bromofluorobenzene	460-00-4	0.1	%	94.5	93.8	94.6	94.3	87.6
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	35.9	24.6	25.9	29.1	23.4
2-Chlorophenol-D4	93951-73-6	0.1	%	82.1	57.9	58.0	66.1	55.5
2,4,6-Tribromophenol	118-79-6	0.1	%	104	66.4	64.9	73.3	57.3
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	88.1	65.6	63.0	70.0	57.5
Anthracene-d10	1719-06-8	0.1	%	104	73.5	70.8	77.5	69.8
4-Terphenyl-d14	1718-51-0	0.1	%	118	67.1	77.7	78.2	85.0
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	83.4	87.2	91.3	94.9	77.2
Toluene-D8	2037-26-5	0.1	%	110	107	106	107	110
4-Bromofluorobenzene	460-00-4	0.1	%	90.4	90.3	89.1	89.6	78.4
EP130S: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	76.7	71.2	67.9	68.2	62.0
EP131S: OC Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	106	110	97.6	97.2	88.6
EP131T: PCB Surrogate								



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				T29P	T30P	T31P	T32P	TZP
				18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00	18-DEC-2012 13:00
Compound	CAS Number	LOR	Unit	EP1210564-001	EP1210564-002	EP1210564-003	EP1210564-004	EP1210564-005
EP131T: PCB Surrogate - Continued								
Decachlorobiphenyl	2051-24-3	0.1	%	95.3	93.1	76.6	79.1	70.0
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	113	102	114	118	102
Anthracene-d10	1719-06-8	0.1	%	95.4	119	91.3	84.0	94.0
4-Terphenyl-d14	1718-51-0	0.1	%	121	96.0	108	94.3	113
EP201S: Carbamate Surrogate								
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	0.1	%	80.0	77.1	67.4	68.3	74.0
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	125	127	129	133	123



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TZR	TZB	---	---	---
				18-DEC-2012 13:00	18-DEC-2012 13:00	---	---	---
				EP1210564-006	EP1210564-007	---	---	---
Compound	CAS Number	LOR	Unit					
ED093T: Total Major Cations								
Magnesium	7439-95-4	1	mg/L	<1	<1	---	---	---
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	---	---	---
EG050T: Total Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	---	---	---
EG094T: Total metals in Fresh water by ORC-ICPMS								
Aluminium	7429-90-5	5	µg/L	<5	<5	---	---	---
Iron	7439-89-6	2	µg/L	2	<2	---	---	---
Selenium	7782-49-2	0.2	µg/L	<0.2	<0.2	---	---	---
Arsenic	7440-38-2	0.2	µg/L	<0.2	<0.2	---	---	---
Boron	7440-42-8	5	µg/L	<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	---	---	---
Copper	7440-50-8	0.5	µg/L	<0.5	<0.5	---	---	---
Lead	7439-92-1	0.1	µg/L	<0.1	<0.1	---	---	---
Manganese	7439-96-5	0.5	µg/L	<0.5	<0.5	---	---	---
Molybdenum	7439-98-7	0.1	µg/L	<0.1	<0.1	---	---	---
Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	---	---	---
Tin	7440-31-5	0.2	µg/L	<0.2	<0.2	---	---	---
Zinc	7440-66-6	1	µg/L	<1	<1	---	---	---
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	0.004	mg/L	<0.004	<0.004	---	---	---
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.01	0.01	---	---	---
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	---	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	<0.01	<0.01	---	---	---
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	---	0.01	mg/L	<0.01	<0.01	---	---	---
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	---	0.1	mg/L	<0.1	<0.1	---	---	---
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)				Client sample ID	TZR	TZB	---	---	---
Client sampling date / time				18-DEC-2012 13:00	18-DEC-2012 13:00	---	---	---	
Compound	CAS Number	LOR	Unit	EP1210564-006	EP1210564-007	---	---	---	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser - Continued									
↑ Total Nitrogen as N	----	0.1	mg/L	<0.1	<0.1	---	---	---	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	---	---	---	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	---	---	---	
EK085M: Sulfide as S2-									
Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	---	---	---	
EP045: Volatile Acids as CH3COOH									
Volatile Acids as Acetic Acid	----	5	mg/L	38	23	---	---	---	
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L	<5	<5	---	---	---	
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	---	---	---	
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	---	---	---	
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	---	---	---	
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	---	---	---	
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	---	---	---	
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	---	---	---	
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	---	---	---	
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	---	---	---	
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	---	---	---	
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	---	---	---	
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	---	---	---	
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	---	---	---	
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L	<5	<5	---	---	---	
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	---	---	---	
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	---	---	---	
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	---	---	---	
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	---	---	---	
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	---	---	---	
EP074E: Halogenated Aliphatic Compounds									



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)

Client sample ID

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				TZR	TZB	---	---	---
				18-DEC-2012 13:00	18-DEC-2012 13:00	---	---	---
				EP1210564-006	EP1210564-007	---	---	---
Compound	CAS Number	LOR	Unit					
EP074E: Halogenated Aliphatic Compounds - Continued								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	---	---	---
Chloromethane	74-87-3	50	µg/L	<50	<50	---	---	---
Vinyl chloride	75-01-4	50	µg/L	<50	<50	---	---	---
Bromomethane	74-83-9	50	µg/L	<50	<50	---	---	---
Chloroethane	75-00-3	50	µg/L	<50	<50	---	---	---
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	---	---	---
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	---	---	---
Iodomethane	74-88-4	5	µg/L	<5	<5	---	---	---
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	---	---	---
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	---	---	---
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	---	---	---
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	---	---	---
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	---	---	---
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	---	---	---
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	---	---	---
Trichloroethene	79-01-6	5	µg/L	<5	<5	---	---	---
Dibromomethane	74-95-3	5	µg/L	<5	<5	---	---	---
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	---	---	---
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	---	---	---
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	---	---	---
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	---	---	---
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	---	---	---
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	---	---	---
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	---	---	---
Pentachloroethane	76-01-7	5	µg/L	<5	<5	---	---	---
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	---	---	---
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	---	---	---
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	---	---	---
Bromobenzene	108-86-1	5	µg/L	<5	<5	---	---	---
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	---	---	---
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	---	---	---
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	---	---	---



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)

Client sample ID

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				TZR	TZB	---	---	---
				18-DEC-2012 13:00	18-DEC-2012 13:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210564-006	EP1210564-007	---	---	---
EP074F: Halogenated Aromatic Compounds - Continued								
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	---	---	---
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	---	---	---
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	---	---	---
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	---	---	---
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	---	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	---	---	---
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	---	---	---
Bromoform	75-25-2	5	µg/L	<5	<5	---	---	---
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	---	---	---
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	---	---	---
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	---	---	---
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	---	---	---
4-Chloro-3-Methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	---	---	---
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	---	---	---
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	---	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.02	µg/L	0.04	0.05	---	---	---
Acenaphthylene	208-96-8	0.02	µg/L	<0.02	<0.02	---	---	---
Acenaphthene	83-32-9	0.02	µg/L	<0.02	<0.02	---	---	---
Fluorene	86-73-7	0.02	µg/L	<0.02	<0.02	---	---	---
Phenanthrene	85-01-8	0.02	µg/L	<0.02	<0.02	---	---	---
Anthracene	120-12-7	0.02	µg/L	<0.02	<0.02	---	---	---
Fluoranthene	206-44-0	0.02	µg/L	<0.02	<0.02	---	---	---
Pyrene	129-00-0	0.02	µg/L	<0.02	<0.02	---	---	---
Benz(a)anthracene	56-55-3	0.02	µg/L	<0.02	<0.02	---	---	---
Chrysene	218-01-9	0.02	µg/L	<0.02	<0.02	---	---	---



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TZR	TZB	---	---	---
				18-DEC-2012 13:00	18-DEC-2012 13:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210564-006	EP1210564-007	---	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(b)fluoranthene	205-99-2	0.02	µg/L	<0.02	<0.02	---	---	---
Benzo(k)fluoranthene	207-08-9	0.02	µg/L	<0.02	<0.02	---	---	---
Benzo(a)pyrene	50-32-8	0.005	µg/L	<0.005	<0.005	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	0.02	µg/L	<0.02	<0.02	---	---	---
Dibenz(a,h)anthracene	53-70-3	0.02	µg/L	<0.02	<0.02	---	---	---
Benzo(g,h,i)perylene	191-24-2	0.02	µg/L	<0.02	<0.02	---	---	---
^ Total PAH	----	0.005	µg/L	0.040	0.050	---	---	---
^ Benzo(a)pyrene TEQ (WHO)	----	0.005	µg/L	<0.005	<0.005	---	---	---
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 2010 Draft								
C6 - C10 Fraction	----	20	µg/L	<20	<20	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	----	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	---	---	---
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	2	2	---	---	---
Toluene	108-88-3	2	µg/L	6	6	---	---	---
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	8	8	---	---	---
Naphthalene	91-20-3	5	µg/L	<5	<5	---	---	---
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	0.10	µg/L	<0.10	<0.10	---	---	---
Carbophenothion	786-19-6	0.10	µg/L	<0.10	<0.10	---	---	---



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)

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				18-DEC-2012 13:00	18-DEC-2012 13:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210564-006	EP1210564-007	---	---	---
EP130A: Organophosphorus Pesticides (Ultra-trace) - Continued								
Chlorfenvinphos (Z)	18708-87-7	0.10	µg/L	<0.10	<0.10	---	---	---
Chlorpyrifos	2921-88-2	0.05	µg/L	<0.05	<0.05	---	---	---
Chlorpyrifos-methyl	5598-13-0	0.10	µg/L	<0.10	<0.10	---	---	---
Demeton-S-methyl	919-86-8	0.10	µg/L	<0.10	<0.10	---	---	---
Diazinon	333-41-5	0.10	µg/L	<0.10	<0.10	---	---	---
Dichlorvos	62-73-7	0.10	µg/L	<0.10	<0.10	---	---	---
Dimethoate	60-51-5	0.10	µg/L	<0.10	<0.10	---	---	---
Ethion	563-12-2	0.10	µg/L	<0.10	<0.10	---	---	---
Fenamiphos	22224-92-6	0.10	µg/L	<0.10	<0.10	---	---	---
Fenthion	55-38-9	0.10	µg/L	<0.10	<0.10	---	---	---
Malathion	121-75-5	0.10	µg/L	<0.10	<0.10	---	---	---
Azinphos Methyl	86-50-0	0.10	µg/L	<0.10	<0.10	---	---	---
Monocrotophos	6923-22-4	0.10	µg/L	<0.10	<0.10	---	---	---
Parathion	56-38-2	0.10	µg/L	<0.10	<0.10	---	---	---
Parathion-methyl	298-00-0	0.10	µg/L	<0.10	<0.10	---	---	---
Pirimphos-ethyl	23505-41-1	0.10	µg/L	<0.10	<0.10	---	---	---
Prothiofos	34643-46-4	0.10	µg/L	<0.10	<0.10	---	---	---
EP131A: Organochlorine Pesticides								
Aldrin	309-00-2	0.010	µg/L	<0.010	<0.010	---	---	---
alpha-BHC	319-84-6	0.010	µg/L	<0.010	<0.010	---	---	---
beta-BHC	319-85-7	0.010	µg/L	<0.010	<0.010	---	---	---
delta-BHC	319-86-8	0.010	µg/L	<0.010	<0.010	---	---	---
4.4'-DDD	72-54-8	0.010	µg/L	<0.010	<0.010	---	---	---
4.4'-DDE	72-55-9	0.010	µg/L	<0.010	<0.010	---	---	---
4.4'-DDT	50-29-3	0.010	µg/L	<0.010	<0.010	---	---	---
^ Sum of DDD + DDE + DDT	---	0.010	µg/L	<0.010	<0.010	---	---	---
Dieldrin	60-57-1	0.010	µg/L	<0.010	<0.010	---	---	---
alpha-Endosulfan	959-98-8	0.010	µg/L	<0.010	<0.010	---	---	---
beta-Endosulfan	33213-65-9	0.010	µg/L	<0.010	<0.010	---	---	---
Endosulfan sulfate	1031-07-8	0.010	µg/L	<0.010	<0.010	---	---	---
^ Endosulfan (sum)	115-29-7	0.010	µg/L	<0.010	<0.010	---	---	---
Endrin	72-20-8	0.010	µg/L	<0.010	<0.010	---	---	---
Endrin aldehyde	7421-93-4	0.010	µg/L	<0.010	<0.010	---	---	---
Endrin ketone	53494-70-5	0.010	µg/L	<0.010	<0.010	---	---	---



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)				Client sample ID				
				TZR	TZB	---	---	---
				18-DEC-2012 13:00	18-DEC-2012 13:00	---	---	---
				EP1210564-006	EP1210564-007	---	---	---
Compound	CAS Number	LOR	Unit					
EP131A: Organochlorine Pesticides - Continued								
Heptachlor	76-44-8	0.005	µg/L	<0.005	<0.005	---	---	---
Heptachlor epoxide	1024-57-3	0.010	µg/L	<0.010	<0.010	---	---	---
Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L	<0.010	<0.010	---	---	---
gamma-BHC	58-89-9	0.010	µg/L	<0.010	<0.010	---	---	---
Methoxychlor	72-43-5	0.010	µg/L	<0.010	<0.010	---	---	---
cis-Chlordane	5103-71-9	0.010	µg/L	<0.010	<0.010	---	---	---
trans-Chlordane	5103-74-2	0.010	µg/L	<0.010	<0.010	---	---	---
^ Total Chlordane (sum)	----	0.010	µg/L	<0.010	<0.010	---	---	---
Oxychlordane	27304-13-8	0.010	µg/L	<0.010	<0.010	---	---	---
EP131B: Polychlorinated Biphenyls (as Aroclors)								
Total Polychlorinated biphenyls	----	0.10	µg/L	<0.10	<0.10	---	---	---
Aroclor 1016	12674-11-2	0.10	µg/L	<0.10	<0.10	---	---	---
Aroclor 1221	11104-28-2	0.10	µg/L	<0.10	<0.10	---	---	---
Aroclor 1232	11141-16-5	0.10	µg/L	<0.10	<0.10	---	---	---
Aroclor 1242	53469-21-9	0.10	µg/L	<0.10	<0.10	---	---	---
Aroclor 1248	12672-29-6	0.10	µg/L	<0.10	<0.10	---	---	---
Aroclor 1254	11097-69-1	0.10	µg/L	<0.10	<0.10	---	---	---
Aroclor 1260	11096-82-5	0.10	µg/L	<0.10	<0.10	---	---	---
EP201: Carbamate Pesticides by LCMS								
Oxamyl	23135-22-0	0.2	µg/L	<0.2	<0.2	---	---	---
Methomyl	16752-77-5	0.2	µg/L	<0.2	<0.2	---	---	---
3-Hydroxy Carbofuran	16655-82-6	0.2	µg/L	<0.2	<0.2	---	---	---
Aldicarb	116-06-3	0.2	µg/L	<0.2	<0.2	---	---	---
Bendiocarb	22781-23-3	0.2	µg/L	<0.2	<0.2	---	---	---
Thiodicarb	59669-26-0	0.2	µg/L	<0.2	<0.2	---	---	---
Carbofuran	1563-66-2	0.2	µg/L	<0.2	<0.2	---	---	---
Carbaryl	63-25-2	0.2	µg/L	<0.2	<0.2	---	---	---
Methiocarb	2032-65-7	0.2	µg/L	<0.2	<0.2	---	---	---
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	---	---	---
2,4-DB	94-82-6	10	µg/L	<10	<10	---	---	---
Dicamba	1918-00-9	10	µg/L	<10	<10	---	---	---
Mecoprop	93-65-2	10	µg/L	<10	<10	---	---	---



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)

Client sample ID

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				TZR	TZB	---	---	---
				18-DEC-2012 13:00	18-DEC-2012 13:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210564-006	EP1210564-007	---	---	---
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued								
MCPA	94-74-6	10	µg/L	<10	<10	---	---	---
2,4-DP	120-36-5	10	µg/L	<10	<10	---	---	---
2,4-D	94-75-7	10	µg/L	<10	<10	---	---	---
Triclopyr	55335-06-3	10	µg/L	<10	<10	---	---	---
2,4,5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	---	---	---
2,4,5-T	93-76-5	10	µg/L	<10	<10	---	---	---
MCPB	94-81-5	10	µg/L	<10	<10	---	---	---
Picloram	1918-02-1	10	µg/L	<10	<10	---	---	---
Clopyralid	1702-17-6	10	µg/L	<10	<10	---	---	---
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	---	---	---
2,6-D	575-90-6	10	µg/L	<10	<10	---	---	---
2,4,6-T	575-89-3	10	µg/L	<10	<10	---	---	---
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	90.2	88.4	---	---	---
Toluene-D8	2037-26-5	0.1	%	101	101	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	94.2	93.2	---	---	---
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	29.9	33.1	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	72.8	79.0	---	---	---
2,4,6-Tribromophenol	118-79-6	0.1	%	73.4	78.3	---	---	---
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	78.5	79.8	---	---	---
Anthracene-d10	1719-06-8	0.1	%	86.1	88.5	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	81.9	111	---	---	---
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	85.6	83.2	---	---	---
Toluene-D8	2037-26-5	0.1	%	108	110	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	83.7	86.2	---	---	---
EP130S: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	88.5	86.6	---	---	---
EP131S: OC Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	88.5	122	---	---	---
EP131T: PCB Surrogate								



Analytical Results

Sub-Matrix: PORE WATER (Matrix: WATER)

Client sample ID

				TZR	TZB	---	---	---
				18-DEC-2012 13:00	18-DEC-2012 13:00	---	---	---
				EP1210564-006	EP1210564-007	---	---	---
Compound	CAS Number	LOR	Unit					
EP131T: PCB Surrogate - Continued								
Decachlorobiphenyl	2051-24-3	0.1	%	99.1	97.0	---	---	---
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	115	114	---	---	---
Anthracene-d10	1719-06-8	0.1	%	95.1	99.5	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	109	116	---	---	---
EP201S: Carbamate Surrogate								
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	0.1	%	82.9	78.6	---	---	---
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	129	122	---	---	---



Surrogate Control Limits

Sub-Matrix: PORE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	62.3	133.9
Toluene-D8	2037-26-5	74.5	124.3
4-Bromofluorobenzene	460-00-4	63.9	118.5
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	67.2
2-Chlorophenol-D4	93951-73-6	29.4	119.5
2,4,6-Tribromophenol	118-79-6	10.0	130.8
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	33.8	130.7
Anthracene-d10	1719-06-8	42.7	126.5
4-Terphenyl-d14	1718-51-0	40.5	142.4
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	60.5	141.2
Toluene-D8	2037-26-5	73.4	126
4-Bromofluorobenzene	460-00-4	59.6	125.3
EP130S: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	32	136.4
EP131S: OC Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	136
EP131T: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	164
EP132T: Base/Neutral Extractable Surrogates			
2-Fluorobiphenyl	321-60-8	57.6	113
Anthracene-d10	1719-06-8	60.4	125
4-Terphenyl-d14	1718-51-0	58.2	128
EP201S: Carbamate Surrogate			
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	65	147
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2,4-Dichlorophenyl Acetic Acid	19719-28-9	64	140

CLIENT: PTA
 SITE: Burswood Stadium
 PROJECT REF.: 112147
 SCIENTIST (S): JA and AJ
 SAMPLE TYPE: Surface Water
 REPORT TO: Josh Abbott/Alan Foley



38 Station St Subiaco 6008
 Tel: (618) 9382 4744
 Fax: (618) 9382 1177

SURFACE WATER ANALYSIS SUITES

SAMPLE ID.	DATE	Trace metals (Al, As, B, Cd, Cr, Cr(VI), Cu, Fe, Pb, Mg, Mo, Mn, Hg, Ni, Se, Sn, Zn), ICP-MS-ORC	Ultra trace OC/OP Pesticides	TPH/BTEX	VOC	Cyanide	Speciated Phenols	Ultra trace PAH	PCB's ultra trace	Nutrients (Total nitrogen, ammonia, nitrate and nitrite as NO ₃ -N, total Kjeldahl nitrogen and	Carbamates and Herbicides	Volatile Organic Acids	Sulphide	Pathogens (enterococci, thermotolerant coliforms)	REMARKS
		1	13/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	13/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Surface Water - 15 bottles
3	13/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Surface Water - 15 bottles
4	13/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Surface Water - 15 bottles
5	13/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Surface Water - 15 bottles
6	13/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Surface Water - 15 bottles
7	13/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Surface Water - 15 bottles
8	13/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Surface Water - 15 bottles
9	13/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Surface Water - 15 bottles
10	13/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Surface Water - 15 bottles
11	13/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Pore Water - 15 bottles
12	13/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Pore Water - 15 bottles
13	13/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Pore Water - 15 bottles
14	13/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Pore Water - 15 bottles
15	13/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Pore Water - 15 bottles
16	13/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Pore Water - 15 bottles
17	13/12/2012	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Pore Water - 15 bottles
Destination Laboratory ALS															
QUOTE - EP1689/12 V4															

Relinquished by JA Organisation RPS
 Date 14/12/12 Time 0800

Received by Luke Stone Organisation ALST
 Date 14/12 Time 12:40

Environmental Division
 Perth
 Work Order
EP1210463



Telephone : + 61-8-9209 7655

SAMPLE RECEIPT NOTIFICATION (SRN)**Comprehensive Report**

Work Order : **EP1210463**

Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: MR ALAN FOLEY	Contact	: Scott James
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: alan.foley@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: 112147 Burswood Stadium	Page	: 1 of 4
Order number	: ----		
C-O-C number	: ----	Quote number	: EP2012BOWBIS0143 (EP/689/12 V4)
Site	: Burswood Stadium		
Sampler	: JA and AJ	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 14-DEC-2012	Issue Date	: 14-DEC-2012 15:33
Client Requested Due Date	: 04-JAN-2013	Scheduled Reporting Date	: 04-JAN-2013

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 16.9 - Ice bricks present
No. of coolers/boxes	: 7 Medium Hard Eskies	No. of samples received	: 17
Security Seal	: Intact.	No. of samples analysed	: 17

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.
- Please see scanned COC for sample discrepancies: extra samples , samples not received etc.
- **Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.**
- **pH analysis should be conducted within 6 hours of sampling.**
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (SamplesPerth@alsenviro.com)
- Sample Disposal - Aqueous (14 days), Solid (90 days) from date of completion of Work Order.



Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP045 Volatile Acids as CH3COOH	WATER - EP075 SIM Phenols only SIM - Phenols only	WATER - EP132-LL Super Ultra Trace PAH	WATER - EP201 Carbamates	WATER - EP202SL Phenoxyacetic Acid	WATER - FCF-WAT (Subcontracted) Faecal Coliforms (Water)	WATER - NT-08A Total Nitrogen + NO2 + NO3 + NH3 + Total P + Reactive P	WATER - UTO-3W Ultratrace OP / OC / PCB Pesticides
EP1210463-001	13-DEC-2012 15:00	T01W	✓	✓	✓	✓	✓	✓	✓	✓
EP1210463-002	13-DEC-2012 15:00	T02W		✓	✓	✓	✓	✓	✓	✓
EP1210463-003	13-DEC-2012 15:00	T25W	✓	✓	✓	✓	✓	✓	✓	✓
EP1210463-004	13-DEC-2012 15:00	T26W	✓	✓	✓	✓	✓	✓	✓	✓
EP1210463-005	13-DEC-2012 15:00	T27W	✓	✓	✓	✓	✓	✓	✓	✓
EP1210463-006	13-DEC-2012 15:00	T28W	✓	✓	✓	✓	✓	✓	✓	✓
EP1210463-007	13-DEC-2012 15:00	TZW	✓	✓	✓	✓	✓	✓	✓	✓
EP1210463-008	13-DEC-2012 15:00	TWR	✓	✓	✓	✓	✓	✓	✓	✓
EP1210463-009	13-DEC-2012 15:00	TWB	✓	✓	✓	✓	✓	✓	✓	✓
EP1210463-010	13-DEC-2012 15:00	TZR	✓	✓	✓	✓	✓	✓	✓	✓
EP1210463-011	13-DEC-2012 15:00	TZB	✓	✓	✓	✓	✓	✓	✓	✓
EP1210463-012	13-DEC-2012 15:00	T03P	✓	✓	✓	✓	✓	✓	✓	✓
EP1210463-013	13-DEC-2012 15:00	T04P		✓	✓	✓	✓	✓	✓	✓
EP1210463-014	13-DEC-2012 15:00	T05P	✓	✓	✓	✓	✓	✓	✓	✓
EP1210463-015	13-DEC-2012 15:00	T06P	✓	✓	✓	✓	✓	✓	✓	✓
EP1210463-016	13-DEC-2012 15:00	T07P		✓	✓	✓	✓	✓	✓	✓
EP1210463-017	13-DEC-2012 15:00	T08P	✓	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-09 TPH/VOC
EP1210463-001	13-DEC-2012 15:00	T01W	✓
EP1210463-002	13-DEC-2012 15:00	T02W	✓
EP1210463-003	13-DEC-2012 15:00	T25W	✓
EP1210463-004	13-DEC-2012 15:00	T26W	✓
EP1210463-005	13-DEC-2012 15:00	T27W	✓
EP1210463-006	13-DEC-2012 15:00	T28W	✓
EP1210463-007	13-DEC-2012 15:00	TZW	✓
EP1210463-008	13-DEC-2012 15:00	TWR	✓
EP1210463-009	13-DEC-2012 15:00	TWB	✓
EP1210463-010	13-DEC-2012 15:00	TZR	✓
EP1210463-011	13-DEC-2012 15:00	TZB	✓
EP1210463-012	13-DEC-2012 15:00	T03P	✓
EP1210463-013	13-DEC-2012 15:00	T04P	✓
EP1210463-014	13-DEC-2012 15:00	T05P	✓

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: EP1210463	Page	: 1 of 21
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: MR ALAN FOLEY	Contact	: Scott James
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: alan.foley@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: I12147 Burswood Stadium	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Burswood Stadium	Date Samples Received	: 14-DEC-2012
C-O-C number	: ----	Issue Date	: 08-JAN-2013
Sampler	: JA and AJ	No. of samples received	: 17
Order number	: ----	No. of samples analysed	: 17
Quote number	: EP/689/12 V4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers



Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

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
ED093T: Total Major Cations							
Clear Plastic Bottle - Unfiltered; Lab-acidified (ED093T) TZB	13-DEC-2012	08-JAN-2013	10-JAN-2013	✓	08-JAN-2013	10-JAN-2013	✓
Clear Plastic Bottle - Unfiltered; Lab-acidified (ED093T) T01W, T02W, T25W, T26W, T27W, T28W, TZW, TWR, TWB, TZR, T03P, T04P, T05P, T06P, T07P, T08P	13-DEC-2012	21-DEC-2012	10-JAN-2013	✓	21-DEC-2012	10-JAN-2013	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG035T) T01W, T02W, T25W, T26W, T27W, T28W, TZW, TWR, TWB, TZR, TZB, T03P, T04P, T05P, T06P, T07P, T08P	13-DEC-2012	----	----	----	28-DEC-2012	27-DEC-2012	*



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	
EG050T: Total Hexavalent Chromium								
Clear Plastic Bottle - NaOH (EG050G-T) T01W, T02W, T25W, T26W, T27W, T28W, TZW, TZR, TZB, T04P, T05P, T06P, T07P, T08P	13-DEC-2012	----	----	----	19-DEC-2012	10-JAN-2013	✓	
Clear Plastic Bottle - Natural (EG050G-T) TWR, TWB, T03P	13-DEC-2012	----	----	----	14-DEC-2012	14-DEC-2012	✓	
EG093T: Total Metals in Saline Water by ORC-ICPMS								
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093A-T) T01W, T02W, T25W, T26W, T27W, T28W, TZW, T03P, T04P, T05P, T06P, T07P, T08P	13-DEC-2012	03-JAN-2013	11-JUN-2013	✓	03-JAN-2013	11-JUN-2013	✓	
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093A-T) TWR, TZR, TZB	13-DEC-2012	24-DEC-2012	11-JUN-2013	✓	24-DEC-2012	11-JUN-2013	✓	
EG093T: Total Metals in Saline Water by ORC-ICPMS								
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG093B-T) T01W, T02W, T25W, T26W, T27W, T28W, TZW, T03P, T04P, T05P, T06P, T07P, T08P	13-DEC-2012	03-JAN-2013	11-JUN-2013	✓	03-JAN-2013	11-JUN-2013	✓	
EG094T: Total metals in Fresh water by ORC-ICPMS								
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG094A-T) TWR, TWB, TZR, TZB	13-DEC-2012	24-DEC-2012	11-JUN-2013	✓	24-DEC-2012	11-JUN-2013	✓	
EG094T: Total metals in Fresh water by ORC-ICPMS								
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified (EG094B-T) TWR, TWB, TZR, TZB	13-DEC-2012	24-DEC-2012	11-JUN-2013	✓	24-DEC-2012	11-JUN-2013	✓	



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	
EK026SF: Total CN by Segmented Flow Analyser								
Clear Plastic Bottle - NaOH (EK026SF) TZR, T04P, T06P, T08P	TZB, T05P, T07P,	13-DEC-2012	---	27-DEC-2012	----	18-DEC-2012	27-DEC-2012	✓
White Plastic Bottle-NaOH (EK026SF) T01W, T25W, T27W, TZW, TWB,	T02W, T26W, T28W, TWR, T03P	13-DEC-2012	---	27-DEC-2012	----	18-DEC-2012	27-DEC-2012	✓
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G) T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P	T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	13-DEC-2012	---	10-JAN-2013	----	14-DEC-2012	10-JAN-2013	✓
EK057G: Nitrite as N by Discrete Analyser								
Clear Plastic Bottle - Natural (EK057G) T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P	T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	13-DEC-2012	---	15-DEC-2012	----	14-DEC-2012	15-DEC-2012	✓



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)								
T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P	T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	13-DEC-2012	---	10-JAN-2013	----	14-DEC-2012	10-JAN-2013	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK061G)								
T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P	T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	13-DEC-2012	27-DEC-2012	10-JAN-2013	✓	28-DEC-2012	10-JAN-2013	✓
EK067G: Total Phosphorus as P by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK067G)								
T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P	T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	13-DEC-2012	27-DEC-2012	10-JAN-2013	✓	28-DEC-2012	10-JAN-2013	✓



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)								
T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P	T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	13-DEC-2012	---	15-DEC-2012	----	14-DEC-2012	15-DEC-2012	✓
EK085M: Sulfide as S2-								
Clear Plastic Bottle - Zinc Acetate/NaOH (EK085)								
T01W, T26W, T28W, TWR, TZR, T03P, T06P,	T25W, T27W, TZW, TWB, TZB, T05P, T08P	13-DEC-2012	----	----	----	18-DEC-2012	20-DEC-2012	✓
EP045: Volatile Acids as CH3COOH								
Clear Plastic Bottle - Natural (EP045)								
T01W, T26W, T28W, TWR, TZR, T03P, T06P,	T25W, T27W, TZW, TWB, TZB, T05P, T08P	13-DEC-2012	----	----	----	28-DEC-2012	27-DEC-2012	*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
Amber Glass Bottle - Unpreserved (EP071)								
T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P	T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	13-DEC-2012	20-DEC-2012	20-DEC-2012	✓	21-DEC-2012	29-JAN-2013	✓



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	
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	13-DEC-2012	18-DEC-2012	27-DEC-2012	✓	19-DEC-2012	27-DEC-2012	✓	
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	13-DEC-2012	18-DEC-2012	27-DEC-2012	✓	19-DEC-2012	27-DEC-2012	✓	
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	13-DEC-2012	18-DEC-2012	27-DEC-2012	✓	19-DEC-2012	27-DEC-2012	✓	



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	
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	13-DEC-2012	18-DEC-2012	27-DEC-2012	✓	19-DEC-2012	27-DEC-2012	✓	
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	13-DEC-2012	18-DEC-2012	27-DEC-2012	✓	19-DEC-2012	27-DEC-2012	✓	
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	13-DEC-2012	18-DEC-2012	27-DEC-2012	✓	19-DEC-2012	27-DEC-2012	✓	



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	
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074)								
T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P	T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	13-DEC-2012	18-DEC-2012	27-DEC-2012	✓	19-DEC-2012	27-DEC-2012	✓
EP075(SIM)A: Phenolic Compounds								
Amber Glass Bottle - Unpreserved (EP075(SIM))								
T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P	T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	13-DEC-2012	20-DEC-2012	20-DEC-2012	✓	21-DEC-2012	29-JAN-2013	✓
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P	T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	13-DEC-2012	18-DEC-2012	27-DEC-2012	✓	19-DEC-2012	27-DEC-2012	✓



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 2010 Draft							
Amber VOC Vial - Sulfuric Acid (EP080)							
T01W, T02W, T25W, T26W, T27W, T28W, TZW, TWR, TWB, TZR, TZB, T03P, T04P, T05P, T06P, T07P, T08P	13-DEC-2012	18-DEC-2012	27-DEC-2012	✓	19-DEC-2012	27-DEC-2012	✓
EP130A: Organophosphorus Pesticides (Ultra-trace)							
Amber Glass Bottle - Unpreserved (EP130)							
T01W, T02W, T25W, T26W, T27W, T28W, TZW, TWR, TWB, TZR, TZB, T03P, T04P, T05P, T06P, T07P, T08P	13-DEC-2012	20-DEC-2012	20-DEC-2012	✓	02-JAN-2013	29-JAN-2013	✓
EP131A: Organochlorine Pesticides							
Amber Glass Bottle - Unpreserved (EP131A)							
T01W, T02W, T25W, T26W, T27W, T28W, TZW, TWR, TWB, TZR, TZB, T03P, T04P, T05P, T06P, T07P, T08P	13-DEC-2012	20-DEC-2012	20-DEC-2012	✓	02-JAN-2013	29-JAN-2013	✓



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	
EP131B: Polychlorinated Biphenyls (as Aroclors)								
Amber Glass Bottle - Unpreserved (EP131B)								
T01W, T02W, T25W, T26W, T27W, T28W, TZW, TWR, TWB, TZR, TZB, T03P, T04P, T05P, T06P, T07P, T08P	13-DEC-2012	20-DEC-2012	20-DEC-2012	✓	02-JAN-2013	29-JAN-2013	✓	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP132-LL)								
T01W, T02W, T25W, T26W, T27W, T28W, TZW, TWR, TWB, TZR, TZB, T03P, T04P, T05P, T06P, T07P, T08P	13-DEC-2012	20-DEC-2012	20-DEC-2012	✓	22-DEC-2012	29-JAN-2013	✓	
EP201: Carbamate Pesticides by LCMS								
Amber Glass Bottle - Unpreserved (EP201)								
T01W, T02W, T25W, T26W, T27W, T28W, TZW, TWR, TWB, TZR, TZB, T03P, T04P, T05P, T06P, T07P, T08P	13-DEC-2012	----	----	----	18-DEC-2012	20-DEC-2012	✓	

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 Client : RPS ENVIRONMENT PTY LTD
 Project : I12147 Burswood Stadium



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	
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
Amber Glass Bottle - Unpreserved (EP202-SL)								
T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P	T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	13-DEC-2012	----	----	----	18-DEC-2012	20-DEC-2012	✓



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(where) 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	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Ammonia as N by Discrete analyser	EK055G	3	25	12.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	2	19	10.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	3	17	17.6	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Cations - Total	ED093T	2	19	10.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	3	22	13.6	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	3	25	12.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	2	19	10.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	3	25	12.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfide as S2-	EK085	2	14	14.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	2	19	10.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	40	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	6	16.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	1	6	16.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	2	18	11.1	9.5	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	2	18	11.1	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	17	11.8	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Acids as CH3COOH	EP045	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	17	11.8	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	2	25	8.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	2	17	11.8	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	22	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	2	25	8.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organochlorine Pesticides (Ultra-trace)	EP131A	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organophosphorus Pesticides (Ultra-trace)	EP130	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH Compounds in Water	EP132-LL	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	25	8.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfide as S2-	EK085	1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	2	19	10.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Control Samples (LCS) - Continued							
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	6	16.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	1	6	16.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	18	5.6	4.8	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	18	5.6	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Acids as CH3COOH	EP045	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	2	25	8.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	2	17	11.8	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Cations - Total	ED093T	2	20	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	22	9.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	2	25	8.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organochlorine Pesticides (Ultra-trace)	EP131A	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Organophosphorus Pesticides (Ultra-trace)	EP130	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH Compounds in Water	EP132-LL	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	25	8.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfide as S2-	EK085	1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	1	6	16.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	1	6	16.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	18	5.6	4.8	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	1	18	5.6	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Acids as CH3COOH	EP045	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	2	25	8.0	5.0	✓	ALS QCS3 requirement
Carbamate Pesticides by LCMS	EP201	1	19	5.3	5.0	✓	ALS QCS3 requirement



Matrix: **WATER** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Matrix Spikes (MS) - Continued							
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	2	17	11.8	5.0	✓	ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	22	9.1	5.0	✓	ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	2	25	8.0	5.0	✓	ALS QCS3 requirement
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	1	19	5.3	5.0	✓	ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	25	8.0	5.0	✓	ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	1	19	5.3	5.0	✓	ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.0	5.0	✓	ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	40	5.0	5.0	✓	ALS QCS3 requirement
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	1	18	5.6	4.8	✓	ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.0	5.0	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	17	5.9	5.0	✓	ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.9	5.0	✓	ALS QCS3 requirement



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
Major Cations - Total	ED093T	WATER	APHA 21st ed., 3120; USEPA SW 846 - 6010 Samples are digested by USEPA 3005 prior to analysis. The ICPAES technique ionises the sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(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 SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	WATER	APHA 21st ed., 3500 Cr-A & B. Hexavalent chromium is determined directly on water sample by Discrete Analyser as received by pH adjustment and colour development using dephenylcarbazine. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Metals in Saline Water Suite A by ORC-ICPMS	EG093A-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um 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 (1999) Schedule B(3) (Appdx. 2)
Total Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um 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 (1999) Schedule B(3) (Appdx. 2)
Total Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um 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 (1999) Schedule B(3) (Appdx. 2)
Total Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-T	WATER	APHA 21st ed., 3125; USEPA SW846 - 6020 Samples are 0.45 um 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 (1999) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
Total Cyanide by Segmented Flow Analyser	EK026SF	WATER	APHA 4500-CN-O. Sodium hydroxide preserved samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Ammonia as N by Discrete analyser	EK055G	WATER	APHA 21st ed., 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrite as N by Discrete Analyser	EK057G	WATER	APHA 21st ed., 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrate as N by Discrete Analyser	EK058G	WATER	APHA 21st ed., 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	APHA 21st ed., 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 (1999) Schedule B(3) (Appdx. 2)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	APHA 21st ed., 4500-Norg D. 25mL water samples are digested using a traditional Kjeldahl digestion followed by determination by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	APHA 21st ed., 4500-Norg / 4500-NO3-. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	APHA 21st ed., 4500-P B&F This procedure involves sulphuric acid digestion of a 100mL sample 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 (1999) Schedule B(3) (Appdx. 2)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	APHA 21st ed., 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with orthophosphate 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 (1999) Schedule B(3) (Appdx. 2)
Sulfide as S2-	EK085	WATER	APHA 21st ed., 4500-S2- D Sulfide species present in water samples are immediately precipitated when collected in pretreated caustic/zinc acetate preserved sample containers. After the supernatant is discarded, the resultant precipitate is then coloured using methylene blue indicator and measured using UV-VIS detection at 664nm. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Enterococci analysis (Water)	ENT-WAT	WATER	Enterococci analysis of water matrices conducted by Subcontracting Laboratory
Volatile Acids as CH3COOH	EP045	WATER	APHA 21st ed., 5560 C, Steam distillable acids are captured in caustic solution and determined titrimetrically. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	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 (1999) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds	EP074	WATER	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. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	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 (1999) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	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 NEPM (1999) Schedule B(3) (Appdx. 2)
Organophosphorus Pesticides (Ultra-trace)	EP130	WATER	USEPA Method 3640 (GPC cleanup), 8141 (GC/FPD - Capillary Column) This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Organochlorine Pesticides (Ultra-trace)	EP131A	WATER	USEPA Method 3640 (GPC cleanup),3620 (Florasil), 8081/8082 (GC/uECD/uECD). This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
PCB's (Ultra-trace)	EP131B	WATER	USEPA Method 3640 (GPC cleanup),3620 (Florasil), 8081/8082 (GC/uECD/uECD). This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
PAH Compounds in Water	EP132-LL	WATER	8270 GCMS, LVI, Capillary column, SIM mode. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Carbamate Pesticides by LCMS	EP201	WATER	In-house LCMS (Electrospray in positive mode). Residues of carbamates in water are concentrated on a solid phase extraction cartridge. The compounds are then eluted with 10%methanol in MTBE. The extract is evaporated to nearly dryness and reconstituted in HPLC mobile phase for LC/MS determination.
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202-SL	WATER	In-House, LCMS (Electrospray in negative mode). After adding surrogate and acetic acid, water samples are injected on a C18 column for LC/MS determination.
Faecal Coliforms (Water)	FCF-WAT	WATER	Faecal Coliform analysis of water matrices conducted by Subcontracting Laboratory
Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Digestion for Total Recoverable Metals - ORC	EN25-ORC	WATER	Modified 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 (1999) Schedule B(3) (Appdx. 2)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 500 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 (1999) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Sep. Funnel Extraction /Acetylation of Phenolic Compounds	ORG14-AC	WATER	USEPA 3510 (Extraction)/ In-house (Acetylation): A 1L sample is extracted into dichloromethane and concentrated to 1 mL with exchange into cyclohexane. Phenolic compounds are reacted with acetic anhydride to yield phenyl acetates suitable for ultra-trace analysis. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.

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Project : I12147 Burswood Stadium



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Sep. Funnel Extraction of Liquids (Ultra-trace pesticides.)	ORG14-UTP	WATER	USEPA 3510 Samples are extracted into dichloromethane, concentrated and exchanged into an appropriate solvent for GPC and florisil cleanup as required. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

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							
EP074G: Trihalomethanes	3147994-002	----	Bromodichloromethane	75-27-4	71.5 %	73-129%	Recovery less than lower control limit
Matrix Spike (MS) Recoveries							
EK026SF: Total CN by Segmented Flow Analyser	EP1210433-001	Anonymous	Total Cyanide	57-12-5	39.1 %	70-130%	Recovery less than lower data quality objective
EK055G: Ammonia as N by Discrete Analyser	EP1210451-001	Anonymous	Ammonia as N	7664-41-7	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EK071G: Reactive Phosphorus as P by discrete analyser	EP1210451-001	Anonymous	Reactive Phosphorus as P	----	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP202A: Phenoxyacetic Acid Herbicides by LCMS	EP1210433-001	Anonymous	Triclopyr	55335-06-3	69.8 %	77-141%	Recovery less than lower data quality objective
EP202A: Phenoxyacetic Acid Herbicides by LCMS	EP1210433-001	Anonymous	2,4,5-T	93-76-5	77.5 %	78-140%	Recovery less than lower data quality objective
EP202A: Phenoxyacetic Acid Herbicides by LCMS	EP1210433-001	Anonymous	Picloram	1918-02-1	14.1 %	76-144%	Recovery less than lower data quality objective
EP202A: Phenoxyacetic Acid Herbicides by LCMS	EP1210433-001	Anonymous	Clopyralid	1702-17-6	12.0 %	77-145%	Recovery less than lower data quality objective

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP132T: Base/Neutral Extractable Surrogates	EP1210463-016	T07P	2-Fluorobiphenyl	321-60-8	116 %	57.6-113 %	Recovery greater than upper data quality objective

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **WATER**



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	
EG035T: Total Recoverable Mercury by FIMS							
Clear HDPE (U-T ORC) - Unfiltered; Lab-acidified							
T01W, T25W, T27W, TZW, TWB, TZB, T04P, T06P, T08P	T02W, T26W, T28W, TWR, TZR, T03P, T05P, T07P,	----	----	----	28-DEC-2012	27-DEC-2012	1
EP045: Volatile Acids as CH3COOH							
Clear Plastic Bottle - Natural							
T01W, T26W, T28W, TWR, TZR, T03P, T06P,	T25W, T27W, TZW, TWB, TZB, T05P, T08P	----	----	----	28-DEC-2012	27-DEC-2012	1

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

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

QUALITY CONTROL REPORT

Work Order	: EP1210463	Page	: 1 of 22
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: MR ALAN FOLEY	Contact	: Scott James
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Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: 112147 Burswood Stadium	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Burswood Stadium	Date Samples Received	: 14-DEC-2012
C-O-C number	: ----	Issue Date	: 08-JAN-2013
Sampler	: JA and AJ	No. of samples received	: 17
Order number	: ----	No. of samples analysed	: 17
Quote number	: EP/689/12 V4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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



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.

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



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Laboratory 825

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compliance with
ISO/IEC 17025.

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Benjamin Nicholson	Metals Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics
Gaston Allende	R&D Chemist	Sydney Organics
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Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



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 (%)
ED093T: Total Major Cations (QC Lot: 2660792)									
EP1210463-001	T01W	ED093T: Magnesium	7439-95-4	1	mg/L	940	903	4.0	0% - 20%
EP1210463-011	TZB	ED093T: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2667021)									
EM1214992-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP1210463-007	TZW	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2667022)									
EP1210463-017	T08P	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1229961-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG050T: Total Hexavalent Chromium (QC Lot: 2650214)									
EP1210463-008	TWR	EG050G-T: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG050T: Total Hexavalent Chromium (QC Lot: 2652235)									
EP1210463-001	T01W	EG050G-T: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.02	0.0	No Limit
EP1210463-013	T04P	EG050G-T: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 2670920)									
EP1210463-001	T01W	EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	8.4	8.8	5.3	0% - 20%
		EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Lead	7439-92-1	0.2	µg/L	4.0	4.2	4.5	0% - 20%
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	1.0	1.0	0.0	No Limit
		EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-T: Manganese	7439-96-5	0.5	µg/L	54.5	55.4	1.6	0% - 20%
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	1.0	1.1	10.5	No Limit
		EG093A-T: Copper	7440-50-8	1	µg/L	9	9	0.0	No Limit
		EG093A-T: Boron	7440-42-8	100	µg/L	3070	3140	2.2	0% - 20%
		EG093A-T: Aluminium	7429-90-5	5	µg/L	104	121	15.5	0% - 20%
EP1210463-015	T06P	EG093A-T: Tin	7440-31-5	5	µg/L	<5	<5	0.0	No Limit
		EG093A-T: Zinc	7440-66-6	5	µg/L	107	111	3.5	0% - 20%
		EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	10.1	9.8	2.4	0% - 20%
		EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-T: Lead	7439-92-1	0.2	µg/L	7.8	7.3	6.5	0% - 20%
		EG093A-T: Arsenic	7440-38-2	0.5	µg/L	5.4	5.5	2.8	0% - 50%
		EG093A-T: Chromium	7440-47-3	0.5	µg/L	17.2	16.7	3.1	0% - 20%
		EG093A-T: Manganese	7439-96-5	0.5	µg/L	436	437	0.3	0% - 20%
		EG093A-T: Nickel	7440-02-0	0.5	µg/L	5.8	5.8	0.0	0% - 50%
		EG093A-T: Copper	7440-50-8	1	µg/L	8	8	0.0	No Limit
EG093A-T: Boron	7440-42-8	100	µg/L	3170	3260	2.9	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 (%)
EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 2670920) - continued									
EP1210463-015	T06P	EG093A-T: Aluminium	7429-90-5	5	µg/L	7850	7970	1.6	0% - 20%
		EG093A-T: Tin	7440-31-5	5	µg/L	<5	<5	0.0	No Limit
		EG093A-T: Zinc	7440-66-6	5	µg/L	13	14	0.0	No Limit
EG093T: Total Metals in Saline Water by ORC-ICPMS (QC Lot: 2670921)									
EP1210463-001	T01W	EG093B-T: Selenium	7782-49-2	2	µg/L	<2	<2	0.0	No Limit
		EG093B-T: Iron	7439-89-6	5	µg/L	199	217	8.6	0% - 20%
EP1210463-015	T06P	EG093B-T: Selenium	7782-49-2	2	µg/L	<2	<2	0.0	No Limit
		EG093B-T: Iron	7439-89-6	5	µg/L	16900	16500	2.6	0% - 20%
EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 2662521)									
EP1210463-009	TWB	EG094A-T: Cadmium	7440-43-9	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EG094A-T: Lead	7439-92-1	0.1	µg/L	0.1	<0.1	0.0	No Limit
		EG094A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	<0.1	0.0	No Limit
		EG094A-T: Arsenic	7440-38-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-T: Chromium	7440-47-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-T: Tin	7440-31-5	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094A-T: Barium	7440-39-3	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG094A-T: Copper	7440-50-8	0.5	µg/L	0.6	0.7	0.0	No Limit
		EG094A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG094A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG094A-T: Zinc	7440-66-6	1	µg/L	2	<1	0.0	No Limit
		EG094A-T: Aluminium	7429-90-5	5	µg/L	<5	<5	0.0	No Limit
EG094T: Total metals in Fresh water by ORC-ICPMS (QC Lot: 2662522)									
EP1210463-009	TWB	EG094B-T: Selenium	7782-49-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG094B-T: Iron	7439-89-6	2	µg/L	<2	<2	0.0	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 2654613)									
EP1210433-001	Anonymous	EK026SF: Total Cyanide	57-12-5	0.004	mg/L	<0.004	<0.004	0.0	No Limit
EP1210463-009	TWB	EK026SF: Total Cyanide	57-12-5	0.004	mg/L	<0.004	<0.004	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 2649719)									
EP1210451-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	92.9	90.3	2.8	0% - 20%
EP1210463-003	T25W	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.08	0.09	15.1	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 2649721)									
EP1210463-013	T04P	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	1.57	1.63	3.9	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 2649669)									
EP1210451-001	Anonymous	EK057G: Nitrite as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP1210463-003	T25W	EK057G: Nitrite as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 2649671)									
EP1210463-013	T04P	EK057G: Nitrite as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 2649720)									
EP1210452-003	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	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 (%)
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 2649720) - continued									
EP1210463-006	T28W	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 2649722)									
EP1210463-016	T07P	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 2660656)									
EP1210463-001	T01W	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.7	0.8	0.0	No Limit
EP1210463-011	TZB	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	0.1	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 2660657)									
EP1210463-001	T01W	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.06	0.06	0.0	No Limit
EP1210463-011	TZB	EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 2649670)									
EP1210451-001	Anonymous	EK071G: Reactive Phosphorus as P	----	0.01	mg/L	14.6	14.8	1.0	0% - 20%
EP1210463-003	T25W	EK071G: Reactive Phosphorus as P	----	0.01	mg/L	0.03	0.03	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 2649672)									
EP1210463-013	T04P	EK071G: Reactive Phosphorus as P	----	0.01	mg/L	0.34	0.34	0.0	0% - 20%
EK085M: Sulfide as S2- (QC Lot: 2653251)									
EP1210463-001	T01W	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EP1210463-011	TZB	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EP045: Volatile Acids as CH3COOH (QC Lot: 2665408)									
EP1210463-001	T01W	EP045: Volatile Acids as Acetic Acid	----	5	mg/L	75	75	0.0	0% - 50%
EP1210463-011	TZB	EP045: Volatile Acids as Acetic Acid	----	5	mg/L	30	30	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2653302)									
EP1210463-001	T01W	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP1210463-011	TZB	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	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 (%)
EP074B: Oxygenated Compounds (QC Lot: 2653302)									
EP1210463-001	T01W	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP1210463-011	TZB	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 2653302)									
EP1210463-001	T01W	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP1210463-011	TZB	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 2653302)									
EP1210463-001	T01W	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP1210463-011	TZB	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2653302)									
EP1210463-001	T01W	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	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 (%)		
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2653302) - continued											
EP1210463-001	T01W	EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit				
EP1210463-011	TZB	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074F: Halogenated Aromatic Compounds (QC Lot: 2653302)									



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 (%)	
EP074F: Halogenated Aromatic Compounds (QC Lot: 2653302) - continued										
EP1210463-001	T01W	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit	
EP1210463-011	TZB	EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit	
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit	
EP074G: Trihalomethanes (QC Lot: 2653302)	EP1210463-001	T01W	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
			EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
			EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
			EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
	EP1210463-011	TZB	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
			EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
			EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
			EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2653303)										
EP1210463-001	T01W	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP1210463-011	TZB	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2653303)										
EP1210463-001	T01W	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP1210463-011	TZB	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
EP080: BTEXN (QC Lot: 2653303)										
EP1210463-001	T01W	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: ortho-Xylene	106-42-3	2	µg/L	<2	<2	0.0	No Limit	
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit		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: 2653303) - continued									
EP1210463-001	T01W	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP1210463-011	TZB	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
			91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP201: Carbamate Pesticides by LCMS (QC Lot: 2653185)									
EP1210433-001	Anonymous	EP201: Oxamyl	23135-22-0	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Methomyl	16752-77-5	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: 3-Hydroxy Carbofuran	16655-82-6	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Aldicarb	116-06-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Bendiocarb	22781-23-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Thiodicarb	59669-26-0	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Carbofuran	1563-66-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Carbaryl	63-25-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Methiocarb	2032-65-7	0.2	µg/L	<0.2	<0.2	0.0	No Limit
EP1210463-001	T01W	EP201: Oxamyl	23135-22-0	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Methomyl	16752-77-5	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: 3-Hydroxy Carbofuran	16655-82-6	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Aldicarb	116-06-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Bendiocarb	22781-23-3	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Thiodicarb	59669-26-0	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Carbofuran	1563-66-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Carbaryl	63-25-2	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EP201: Methiocarb	2032-65-7	0.2	µg/L	<0.2	<0.2	0.0	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2653182)									
EP1210433-001	Anonymous	EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2,4-DB	94-82-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPA	94-74-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2,4-DP	120-36-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2,4-D	94-75-7	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2,4,5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2,4,5-T	93-76-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPB	94-81-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Picloram	1918-02-1	10	µg/L	<10	<10	0.0	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 (%)
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2653182) - continued									
EP1210433-001	Anonymous	EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.6-D	575-90-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.6-T	575-89-3	10	µg/L	<10	<10	0.0	No Limit
EP1210463-009	TWB	EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-DB	94-82-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPA	94-74-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-DP	120-36-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-D	94-75-7	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.5-T	93-76-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPB	94-81-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Picloram	1918-02-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.6-D	575-90-6	10	µg/L	<10	<10	0.0	No Limit
EP202-SL: 2.4.6-T	575-89-3	10	µg/L	<10	<10	0.0	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 Sample (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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
ED093T: Total Major Cations (QCLot: 2660792)									
ED093T: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2667021)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	92.0	71	119	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2667022)									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	90.0	71	119	
EG050T: Total Hexavalent Chromium (QCLot: 2650214)									
EG050G-T: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.5 mg/L	102	90	114	
EG050T: Total Hexavalent Chromium (QCLot: 2652235)									
EG050G-T: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.5 mg/L	104	90	114	
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2670920)									
EG093A-T: Aluminium	7429-90-5	10	µg/L	<10	50 µg/L	108	81	127	
EG093A-T: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	104	89	125	
EG093A-T: Boron	7440-42-8	100	µg/L	<100	----	----	----	----	
EG093A-T: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	103	78	112	
EG093A-T: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	108	86	126	
EG093A-T: Copper	7440-50-8	1	µg/L	<1	10 µg/L	106	87	123	
EG093A-T: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	104	89	121	
EG093A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	105	91	121	
EG093A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	106	90	126	
EG093A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	111	85	125	
EG093A-T: Tin	7440-31-5	5	µg/L	<5	10 µg/L	105	93	130	
EG093A-T: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	104	82	128	
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2670921)									
EG093B-T: Selenium	7782-49-2	2	µg/L	<2	10 µg/L	114	75	133	
EG093B-T: Iron	7439-89-6	5	µg/L	<5	50 µg/L	109	78	132	
EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 2662521)									
EG094A-T: Aluminium	7429-90-5	5	µg/L	<5	50 µg/L	103	84	132	
EG094A-T: Arsenic	7440-38-2	0.2	µg/L	<0.2	10 µg/L	94.6	81	125	
EG094A-T: Barium	7440-39-3	0.5	µg/L	<0.5	10 µg/L	101	79	125	
EG094A-T: Cadmium	7440-43-9	0.05	µg/L	<0.05	10 µg/L	96.2	76	120	
EG094A-T: Chromium	7440-47-3	0.2	µg/L	<0.2	10 µg/L	103	79	127	
EG094A-T: Copper	7440-50-8	0.5	µg/L	<0.5	10 µg/L	94.7	79	129	
EG094A-T: Lead	7439-92-1	0.1	µg/L	<0.1	10 µg/L	107	75	127	
EG094A-T: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	102	80	126	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 2662521) - continued									
EG094A-T: Molybdenum	7439-98-7	0.1	µg/L	<0.1	10 µg/L	96.4	88	126	
EG094A-T: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	98.4	82	124	
EG094A-T: Tin	7440-31-5	0.2	µg/L	<0.2	10 µg/L	102	87	121	
EG094A-T: Zinc	7440-66-6	1	µg/L	<1	10 µg/L	91.1	81	131	
EG094T: Total metals in Fresh water by ORC-ICPMS (QCLot: 2662522)									
EG094B-T: Iron	7439-89-6	2	µg/L	<2	50 µg/L	96.9	83	129	
EG094B-T: Selenium	7782-49-2	0.2	µg/L	<0.2	10 µg/L	93.3	78	124	
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2654613)									
EK026SF: Total Cyanide	57-12-5	0.004	mg/L	<0.004	0.2 mg/L	106	80	127	
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2649719)									
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	100	87	115	
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2649721)									
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	92.6	87	115	
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2649669)									
EK057G: Nitrite as N	----	0.01	mg/L	<0.01	0.5 mg/L	97.5	86	112	
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2649671)									
EK057G: Nitrite as N	----	0.01	mg/L	<0.01	0.5 mg/L	95.5	86	112	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2649720)									
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	104	92	112	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2649722)									
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	108	92	112	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2660656)									
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	91.9	74	130	
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2660657)									
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	99.9	70	130	
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2649670)									
EK071G: Reactive Phosphorus as P	----	0.01	mg/L	<0.01	0.5 mg/L	105	87	115	
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2649672)									
EK071G: Reactive Phosphorus as P	----	0.01	mg/L	<0.01	0.5 mg/L	104	87	115	
EK085M: Sulfide as S2- (QCLot: 2653251)									
EK085: Sulfide as S2-	18496-25-8	0.10	mg/L	<0.1	0.50 mg/L	92.6	82	116	
EP045: Volatile Acids as CH3COOH (QCLot: 2665408)									
EP045: Volatile Acids as Acetic Acid	----	5	mg/L	<5	200 mg/L	102	91	115	
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2653302)									
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	97.3	74	124	
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	95.8	75	121	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Recovery Limits (%)	
					Concentration	LCS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2653302) - continued								
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	98.8	72	122
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	101	73	121
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	98.0	72	122
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	107	74	122
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	93.1	73	121
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	98.0	73	123
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	100	70	126
EP074B: Oxygenated Compounds (QCLot: 2653302)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	91.9	61	135
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	94.8	66	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	86.0	72	126
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	90.1	70	126
EP074C: Sulfonated Compounds (QCLot: 2653302)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	81.5	71	127
EP074D: Fumigants (QCLot: 2653302)								
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	85.1	71	129
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	88.8	74	124
EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	83.1	73	127
EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	78.6	70	130
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	85.4	74	124
EP074E: Halogenated Aliphatic Compounds (QCLot: 2653302)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	83.0	70	130
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	95.9	73	125
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	78.9	72	128
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	85.1	73	127
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	82.3	74	124
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	74.0	72	130
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	78.8	73	129
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	105	42	142
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	88.8	72	126
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	103	73	125
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	83.1	76	122
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	80.5	76	124
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	89.5	74	124
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	74.1	73	129
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	81.2	76	126
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	86.2	75	125
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	80.5	75	127



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 2653302) - continued									
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	88.7	74	122	
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	88.1	72	128	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	90.4	74	124	
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	----	----	----	----	
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	80.8	54	142	
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	91.2	61	135	
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	81.1	66	132	
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	73.8	66	130	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	84.0	66	134	
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	71.8	56	140	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	89.0	66	134	
EP074F: Halogenated Aromatic Compounds (QCLot: 2653302)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	94.3	78	120	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	96.2	76	122	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	90.8	75	121	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	98.0	74	122	
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	92.7	75	121	
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	91.4	75	121	
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	92.0	76	122	
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	116	68	132	
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	92.7	72	128	
EP074G: Trihalomethanes (QCLot: 2653302)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	83.8	75	125	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	# 71.5	73	129	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	70.8	68	132	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	71.8	67	133	
EP075(SIM)A: Phenolic Compounds (QCLot: 2649695)									
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	25 µg/L	35.3	17.9	56	
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	25 µg/L	69.0	42	104	
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	25 µg/L	64.0	36	104	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	50 µg/L	60.4	37	95	
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	25 µg/L	71.6	37	115	
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	25 µg/L	68.2	37	117	
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	25 µg/L	70.0	38	116	
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	25 µg/L	64.8	36	110	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	1	µg/L	<1.0	25 µg/L	64.5	37	117	
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	25 µg/L	65.7	29	117	
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	25 µg/L	70.3	36	120	
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	25 µg/L	79.7	5.4	155	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2649694)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	82.5	30.7	123	
EP071: C15 - C28 Fraction	----	100	µg/L	<100	400 µg/L	84.7	34	142	
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	41.8	32	124	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2653303)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	320 µg/L	81.2	74.2	142	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2649694)									
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	400 µg/L	87.8	32	126	
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	600 µg/L	63.5	32	136	
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	200 µg/L	33.0	28.3	142	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2653303)									
EP080: C6 - C10 Fraction	----	20	µg/L	<20	370 µg/L	75.0	74.2	142	
EP080: BTEXN (QCLot: 2653303)									
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	85.5	72.6	122	
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	88.6	71.1	123	
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	87.4	71.9	121	
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	40 µg/L	93.2	72.3	122	
	106-42-3								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	89.6	72.3	121	
EP080: Naphthalene	91-20-3	5	µg/L	<5	20 µg/L	83.0	78.8	121	
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2654059)									
EP130: Bromophos-ethyl	4824-78-6	0.10	µg/L	<0.10	1.0 µg/L	70.2	40	128	
EP130: Carbophenothion	786-19-6	0.10	µg/L	<0.10	1.0 µg/L	77.7	61	127	
EP130: Chlorfenvinphos (Z)	18708-87-7	0.10	µg/L	<0.10	1.0 µg/L	72.1	69	135	
EP130: Chlorpyrifos	2921-88-2	0.05	µg/L	<0.05	1.0 µg/L	71.4	58	138	
EP130: Chlorpyrifos-methyl	5598-13-0	0.10	µg/L	<0.10	1.0 µg/L	87.5	59	127	
EP130: Demeton-S-methyl	919-86-8	0.10	µg/L	<0.10	1.0 µg/L	78.5	49	143	
EP130: Diazinon	333-41-5	0.10	µg/L	<0.10	1.0 µg/L	71.8	64	120	
EP130: Dichlorvos	62-73-7	0.10	µg/L	<0.10	1.0 µg/L	86.4	38	122	
EP130: Dimethoate	60-51-5	0.10	µg/L	<0.10	1.0 µg/L	77.9	50	134	
EP130: Ethion	563-12-2	0.10	µg/L	<0.10	1.0 µg/L	71.1	60	128	
EP130: Fenamiphos	22224-92-6	0.10	µg/L	<0.10	1.0 µg/L	112	54	138	
EP130: Fenthion	55-38-9	0.10	µg/L	<0.10	1.0 µg/L	92.1	56	128	
EP130: Malathion	121-75-5	0.10	µg/L	<0.10	1.0 µg/L	75.7	59	136	
EP130: Azinphos Methyl	86-50-0	0.10	µg/L	<0.10	1.0 µg/L	74.4	34	148	
EP130: Monocrotophos	6923-22-4	0.10	µg/L	<0.10	1.0 µg/L	14.8	12.1	86.3	
EP130: Parathion	56-38-2	0.10	µg/L	<0.10	1.0 µg/L	74.5	62	140	
EP130: Parathion-methyl	298-00-0	0.10	µg/L	<0.10	1.0 µg/L	79.4	53	139	
EP130: Pirimphos-ethyl	23505-41-1	0.10	µg/L	<0.10	1.0 µg/L	59.6	52	128	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP130A: Organophosphorus Pesticides (Ultra-trace) (QCLot: 2654059) - continued									
EP130: Prothiofos	34643-46-4	0.10	µg/L	<0.10	1.0 µg/L	70.2	55	127	
EP131A: Organochlorine Pesticides (QCLot: 2654058)									
EP131A: Aldrin	309-00-2	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	97.7 ----	35.8 ----	139 ----	
EP131A: alpha-BHC	319-84-6	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	112 ----	19.7 ----	153 ----	
EP131A: beta-BHC	319-85-7	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	90.4 ----	43.8 ----	136 ----	
EP131A: delta-BHC	319-86-8	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	74.6 ----	37.4 ----	144 ----	
EP131A: 4,4'-DDD	72-54-8	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	115 ----	37.5 ----	145 ----	
EP131A: 4,4'-DDE	72-55-9	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	78.9 ----	30.5 ----	146 ----	
EP131A: 4,4'-DDT	50-29-3	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	84.0 ----	31 ----	151 ----	
EP131A: Dieldrin	60-57-1	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	82.0 ----	34.4 ----	145 ----	
EP131A: alpha-Endosulfan	959-98-8	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	92.4 ----	30.2 ----	141 ----	
EP131A: beta-Endosulfan	33213-65-9	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	90.9 ----	30.3 ----	148 ----	
EP131A: Endosulfan sulfate	1031-07-8	0.001 0.01	µg/L µg/L	---- <0.200	0.1 µg/L ----	99.3 ----	19.1 ----	150 ----	
EP131A: Endrin	72-20-8	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	123 ----	13 ----	165 ----	
EP131A: Endosulfan (sum)	115-29-7	0.01	µg/L	<0.010	----	----	----	----	
EP131A: Endrin aldehyde	7421-93-4	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	74.4 ----	28.3 ----	134 ----	
EP131A: Endrin ketone	53494-70-5	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	80.2 ----	15.1 ----	146 ----	
EP131A: Heptachlor	76-44-8	0.001 0.005	µg/L µg/L	---- <0.005	0.1 µg/L ----	74.0 ----	33.2 ----	148 ----	
EP131A: Heptachlor epoxide	1024-57-3	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	92.2 ----	36 ----	143 ----	
EP131A: Hexachlorobenzene (HCB)	118-74-1	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	114 ----	14 ----	146 ----	
EP131A: gamma-BHC	58-89-9	0.001 0.01	µg/L µg/L	---- <0.010	0.1 µg/L ----	104 ----	27.2 ----	147 ----	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
EP131A: Organochlorine Pesticides (QCLot: 2654058) - continued									
EP131A: Methoxychlor	72-43-5	0.001	µg/L	----	0.1 µg/L	76.7	34.4	150	
		0.01	µg/L	<0.010	----	----	----	----	
EP131A: cis-Chlordane	5103-71-9	0.001	µg/L	----	0.1 µg/L	82.1	15.4	152	
		0.01	µg/L	<0.010	----	----	----	----	
EP131A: trans-Chlordane	5103-74-2	0.001	µg/L	----	0.1 µg/L	87.2	45.1	140	
		0.01	µg/L	<0.010	----	----	----	----	
EP131A: Total Chlordane (sum)	----	0.01	µg/L	<0.010	----	----	----	----	
EP131A: Sum of DDD + DDE + DDT	----	0.01	µg/L	<0.010	----	----	----	----	
EP131B: Polychlorinated Biphenyls (as Aroclors) (QCLot: 2654060)									
EP131B: Total Polychlorinated biphenyls	----	0.1	µg/L	<0.10	----	----	----	----	
EP131B: Aroclor 1016	12674-11-2	0.1	µg/L	<0.10	----	----	----	----	
EP131B: Aroclor 1221	11104-28-2	0.1	µg/L	<0.10	----	----	----	----	
EP131B: Aroclor 1232	11141-16-5	0.1	µg/L	<0.10	----	----	----	----	
EP131B: Aroclor 1242	53469-21-9	0.1	µg/L	<0.10	----	----	----	----	
EP131B: Aroclor 1248	12672-29-6	0.1	µg/L	<0.10	----	----	----	----	
EP131B: Aroclor 1254	11097-69-1	0.1	µg/L	<0.10	1.00 µg/L	87.0	61.6	123	
EP131B: Aroclor 1260	11096-82-5	0.1	µg/L	<0.10	----	----	----	----	
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 2654054)									
EP132-LL: Naphthalene	91-20-3	0.02	µg/L	<0.02	0.025 µg/L	101	68.3	116	
EP132-LL: Acenaphthylene	208-96-8	0.02	µg/L	<0.02	0.025 µg/L	80.9	72.4	112	
EP132-LL: Acenaphthene	83-32-9	0.02	µg/L	<0.02	0.025 µg/L	94.1	73.2	111	
EP132-LL: Fluorene	86-73-7	0.02	µg/L	<0.02	0.025 µg/L	89.7	72.9	114	
EP132-LL: Phenanthrene	85-01-8	0.02	µg/L	<0.02	0.025 µg/L	85.9	74.8	112	
EP132-LL: Anthracene	120-12-7	0.02	µg/L	<0.02	0.025 µg/L	94.7	73.4	113	
EP132-LL: Fluoranthene	206-44-0	0.02	µg/L	<0.02	0.025 µg/L	85.5	74.8	117	
EP132-LL: Pyrene	129-00-0	0.02	µg/L	<0.02	0.025 µg/L	88.2	74.1	117	
EP132-LL: Benz(a)anthracene	56-55-3	0.02	µg/L	<0.02	0.025 µg/L	81.7	73.6	114	
EP132-LL: Chrysene	218-01-9	0.02	µg/L	<0.02	0.025 µg/L	88.5	69.6	120	
EP132-LL: Benzo(b)fluoranthene	205-99-2	0.02	µg/L	<0.02	0.025 µg/L	91.3	71.4	119	
EP132-LL: Benzo(k)fluoranthene	207-08-9	0.02	µg/L	<0.02	0.025 µg/L	77.2	74.8	118	
EP132-LL: Benzo(a)pyrene	50-32-8	0.005	µg/L	<0.005	0.025 µg/L	77.7	75.2	117	
EP132-LL: Indeno(1.2.3.cd)pyrene	193-39-5	0.02	µg/L	<0.02	0.025 µg/L	76.9	67.8	119	
EP132-LL: Dibenz(a,h)anthracene	53-70-3	0.02	µg/L	<0.02	0.025 µg/L	88.8	71.5	117	
EP132-LL: Benzo(g,h,i)perylene	191-24-2	0.02	µg/L	<0.02	0.025 µg/L	82.4	66.6	121	
EP132-LL: Total PAH	----	0.005	µg/L	<0.005	----	----	----	----	
EP201: Carbamate Pesticides by LCMS (QCLot: 2653185)									
EP201: Oxamyl	23135-22-0	0.2	µg/L	<0.2	1.0 µg/L	115	78.3	144	
EP201: Methomyl	16752-77-5	0.2	µg/L	<0.2	1.0 µg/L	122	59.9	137	
EP201: 3-Hydroxy Carbofuran	16655-82-6	0.2	µg/L	<0.2	1.0 µg/L	122	61.1	143	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
EP201: Carbamate Pesticides by LCMS (QCLot: 2653185) - continued								
EP201: Aldicarb	116-06-3	0.2	µg/L	<0.2	1.0 µg/L	97.2	52	128
EP201: Bendiocarb	22781-23-3	0.2	µg/L	<0.2	1.0 µg/L	118	70.2	132
EP201: Thiodicarb	59669-26-0	0.2	µg/L	<0.2	1.0 µg/L	95.9	52	144
EP201: Carbofuran	1563-66-2	0.2	µg/L	<0.2	1.0 µg/L	117	65	151
EP201: Carbaryl	63-25-2	0.2	µg/L	<0.2	1.0 µg/L	111	57	151
EP201: Methiocarb	2032-65-7	0.2	µg/L	<0.2	1.0 µg/L	122	58	148
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2653182)								
EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	100 µg/L	94.7	82	136
EP202-SL: 2,4-DB	94-82-6	10	µg/L	<10	100 µg/L	94.5	65	147
EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	100 µg/L	126	83	137
EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	100 µg/L	85.8	75	143
EP202-SL: MCPA	94-74-6	10	µg/L	<10	100 µg/L	90.4	76	140
EP202-SL: 2,4-DP	120-36-5	10	µg/L	<10	100 µg/L	96.2	76	144
EP202-SL: 2,4-D	94-75-7	10	µg/L	<10	100 µg/L	138	77	139
EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	100 µg/L	112	77	141
EP202-SL: 2,4,5-TP (Silvex)	93-72-1	10	µg/L	<10	100 µg/L	131	75	143
EP202-SL: 2,4,5-T	93-76-5	10	µg/L	<10	100 µg/L	116	78	140
EP202-SL: MCPB	94-81-5	10	µg/L	<10	100 µg/L	71.6	69.2	139
EP202-SL: Picloram	1918-02-1	10	µg/L	<10	100 µg/L	127	76	144
EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	100 µg/L	113	77	145
EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	100 µg/L	101	77	145
EP202-SL: 2,6-D	575-90-6	10	µg/L	<10	----	----	----	----
EP202-SL: 2,4,6-T	575-89-3	10	µg/L	<10	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
					MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2667021)							
EM1215099-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	84.9	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2667022)							
ES1229586-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	76.2	70	130
EG050T: Total Hexavalent Chromium (QCLot: 2650214)							
EP1210463-008	TWR	EG050G-T: Hexavalent Chromium	18540-29-9	0.5 mg/L	104	70	130
EG050T: Total Hexavalent Chromium (QCLot: 2652235)							



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%) Low High
EG050T: Total Hexavalent Chromium (QCLot: 2652235) - continued							
EP1210463-001	T01W	EG050G-T: Hexavalent Chromium	18540-29-9	0.5 mg/L	104	70	130
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2670920)							
EP1210463-002	T02W	EG093A-T: Arsenic	7440-38-2	50 µg/L	106	70	130
		EG093A-T: Cadmium	7440-43-9	12.5 µg/L	101	70	130
		EG093A-T: Chromium	7440-47-3	50 µg/L	113	70	130
		EG093A-T: Copper	7440-50-8	50 µg/L	106	70	130
		EG093A-T: Lead	7439-92-1	50 µg/L	99.2	70	130
		EG093A-T: Manganese	7439-96-5	50 µg/L	111	70	130
		EG093A-T: Nickel	7440-02-0	50 µg/L	104	70	130
		EG093A-T: Zinc	7440-66-6	50 µg/L	109	70	130
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2654613)							
EP1210433-001	Anonymous	EK026SF: Total Cyanide	57-12-5	0.2 mg/L	# 39.1	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2649719)							
EP1210451-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1.00 mg/L	# Not Determined	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2649721)							
EP1210463-013	T04P	EK055G: Ammonia as N	7664-41-7	1.00 mg/L	75.7	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2649669)							
EP1210451-001	Anonymous	EK057G: Nitrite as N	----	0.6 mg/L	76.9	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2649671)							
EP1210463-013	T04P	EK057G: Nitrite as N	----	0.6 mg/L	81.9	70	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2649720)							
EP1210452-003	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	90.4	70	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2649722)							
EP1210463-016	T07P	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	96.1	70	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2660656)							
EP1210463-001	T01W	EK061G: Total Kjeldahl Nitrogen as N	----	5.0 mg/L	84.5	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2660657)							
EP1210463-001	T01W	EK067G: Total Phosphorus as P	----	1 mg/L	96.8	70	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2649670)							
EP1210451-001	Anonymous	EK071G: Reactive Phosphorus as P	----	0.5 mg/L	# Not Determined	70	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2649672)							
EP1210463-013	T04P	EK071G: Reactive Phosphorus as P	----	0.5 mg/L	97.3	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 2653302)							



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 2653302) - continued							
EP1210463-002	T02W	EP074: 1,1-Dichloroethene	75-35-4	20 µg/L	90.1	73.7	126
		EP074: Trichloroethene	79-01-6	20 µg/L	107	79.1	120
EP074F: Halogenated Aromatic Compounds (QCLot: 2653302)							
EP1210463-002	T02W	EP074: Chlorobenzene	108-90-7	20 µg/L	114	81.4	115
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2653303)							
EP1210463-002	T02W	EP080: C6 - C9 Fraction	----	280 µg/L	91.0	77.0	137
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2653303)							
EP1210463-002	T02W	EP080: C6 - C10 Fraction	----	330 µg/L	91.2	77.0	137
EP080: BTEXN (QCLot: 2653303)							
EP1210463-002	T02W	EP080: Benzene	71-43-2	20 µg/L	81.4	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	88.9	73.5	126
EP201: Carbamate Pesticides by LCMS (QCLot: 2653185)							
EP1210433-002	Anonymous	EP201: Oxamyl	23135-22-0	1.0 µg/L	103	60	130
		EP201: Methomyl	16752-77-5	1.0 µg/L	96.9	60	130
		EP201: 3-Hydroxy Carbofuran	16655-82-6	1.0 µg/L	96.4	60	130
		EP201: Aldicarb	116-06-3	1.0 µg/L	97.5	52	128
		EP201: Bendiocarb	22781-23-3	1.0 µg/L	95.2	60	130
		EP201: Thiodicarb	59669-26-0	1.0 µg/L	89.0	52	144
		EP201: Carbofuran	1563-66-2	1.0 µg/L	94.2	65	151
		EP201: Carbaryl	63-25-2	1.0 µg/L	94.0	57	151
		EP201: Methiocarb	2032-65-7	1.0 µg/L	118	58	148
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2653182)							
EP1210433-001	Anonymous	EP202-SL: Mecoprop	93-65-2	100 µg/L	80.9	75	143
		EP202-SL: MCPA	94-74-6	100 µg/L	80.9	76	140
		EP202-SL: 2,4-D	94-75-7	100 µg/L	101	77	139
		EP202-SL: Triclopyr	55335-06-3	100 µg/L	# 69.8	77	141
		EP202-SL: 2,4,5-T	93-76-5	100 µg/L	# 77.5	78	140
		EP202-SL: Picloram	1918-02-1	100 µg/L	# 14.1	76	144
		EP202-SL: Clopyralid	1702-17-6	100 µg/L	# 12.0	77	145

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2649669)										
EP1210451-001	Anonymous	EK057G: Nitrite as N	----	0.6 mg/L	76.9	----	70	130	----	----
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2649670)										
EP1210451-001	Anonymous	EK071G: Reactive Phosphorus as P	----	0.5 mg/L	# Not Determined	----	70	130	----	----
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2649671)										
EP1210463-013	T04P	EK057G: Nitrite as N	----	0.6 mg/L	81.9	----	70	130	----	----
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2649672)										
EP1210463-013	T04P	EK071G: Reactive Phosphorus as P	----	0.5 mg/L	97.3	----	70	130	----	----
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2649719)										
EP1210451-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1.00 mg/L	# Not Determined	----	70	130	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2649720)										
EP1210452-003	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	90.4	----	70	130	----	----
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2649721)										
EP1210463-013	T04P	EK055G: Ammonia as N	7664-41-7	1.00 mg/L	75.7	----	70	130	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2649722)										
EP1210463-016	T07P	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	96.1	----	70	130	----	----
EG050T: Total Hexavalent Chromium (QCLot: 2650214)										
EP1210463-008	TWR	EG050G-T: Hexavalent Chromium	18540-29-9	0.5 mg/L	104	----	70	130	----	----
EG050T: Total Hexavalent Chromium (QCLot: 2652235)										
EP1210463-001	T01W	EG050G-T: Hexavalent Chromium	18540-29-9	0.5 mg/L	104	----	70	130	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2653182)										
EP1210433-001	Anonymous	EP202-SL: Mecoprop	93-65-2	100 µg/L	80.9	----	75	143	----	----
		EP202-SL: MCPA	94-74-6	100 µg/L	80.9	----	76	140	----	----
		EP202-SL: 2.4-D	94-75-7	100 µg/L	101	----	77	139	----	----
		EP202-SL: Triclopyr	55335-06-3	100 µg/L	# 69.8	----	77	141	----	----
		EP202-SL: 2.4.5-T	93-76-5	100 µg/L	# 77.5	----	78	140	----	----
		EP202-SL: Picloram	1918-02-1	100 µg/L	# 14.1	----	76	144	----	----
		EP202-SL: Clopyralid	1702-17-6	100 µg/L	# 12.0	----	77	145	----	----
EP201: Carbamate Pesticides by LCMS (QCLot: 2653185)										
EP1210433-002	Anonymous	EP201: Oxamyl	23135-22-0	1.0 µg/L	103	----	60	130	----	----
		EP201: Methomyl	16752-77-5	1.0 µg/L	96.9	----	60	130	----	----
		EP201: 3-Hydroxy Carbofuran	16655-82-6	1.0 µg/L	96.4	----	60	130	----	----
		EP201: Aldicarb	116-06-3	1.0 µg/L	97.5	----	52	128	----	----
		EP201: Bendiocarb	22781-23-3	1.0 µg/L	95.2	----	60	130	----	----
		EP201: Thiodicarb	59669-26-0	1.0 µg/L	89.0	----	52	144	----	----
		EP201: Carbofuran	1563-66-2	1.0 µg/L	94.2	----	65	151	----	----



Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
EP201: Carbamate Pesticides by LCMS (QCLot: 2653185) - continued										
EP1210433-002	Anonymous	EP201: Carbaryl	63-25-2	1.0 µg/L	94.0	----	57	151	----	----
		EP201: Methiocarb	2032-65-7	1.0 µg/L	118	----	58	148	----	----
EP074E: Halogenated Aliphatic Compounds (QCLot: 2653302)										
EP1210463-002	T02W	EP074: 1,1-Dichloroethene	75-35-4	20 µg/L	90.1	----	73.7	126	----	----
		EP074: Trichloroethene	79-01-6	20 µg/L	107	----	79.1	120	----	----
EP074F: Halogenated Aromatic Compounds (QCLot: 2653302)										
EP1210463-002	T02W	EP074: Chlorobenzene	108-90-7	20 µg/L	114	----	81.4	115	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2653303)										
EP1210463-002	T02W	EP080: C6 - C9 Fraction	----	280 µg/L	91.0	----	77.0	137	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2653303)										
EP1210463-002	T02W	EP080: C6 - C10 Fraction	----	330 µg/L	91.2	----	77.0	137	----	----
EP080: BTEXN (QCLot: 2653303)										
EP1210463-002	T02W	EP080: Benzene	71-43-2	20 µg/L	81.4	----	77.0	122	----	----
		EP080: Toluene	108-88-3	20 µg/L	88.9	----	73.5	126	----	----
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 2654613)										
EP1210433-001	Anonymous	EK026SF: Total Cyanide	57-12-5	0.2 mg/L	# 39.1	----	70	130	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2660656)										
EP1210463-001	T01W	EK061G: Total Kjeldahl Nitrogen as N	----	5.0 mg/L	84.5	----	70	130	----	----
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2660657)										
EP1210463-001	T01W	EK067G: Total Phosphorus as P	----	1 mg/L	96.8	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2667021)										
EM1215099-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	84.9	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2667022)										
ES1229586-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	76.2	----	70	130	----	----
EG093T: Total Metals in Saline Water by ORC-ICPMS (QCLot: 2670920)										
EP1210463-002	T02W	EG093A-T: Arsenic	7440-38-2	50 µg/L	106	----	70	130	----	----
		EG093A-T: Cadmium	7440-43-9	12.5 µg/L	101	----	70	130	----	----
		EG093A-T: Chromium	7440-47-3	50 µg/L	113	----	70	130	----	----
		EG093A-T: Copper	7440-50-8	50 µg/L	106	----	70	130	----	----
		EG093A-T: Lead	7439-92-1	50 µg/L	99.2	----	70	130	----	----
		EG093A-T: Manganese	7439-96-5	50 µg/L	111	----	70	130	----	----
		EG093A-T: Nickel	7440-02-0	50 µg/L	104	----	70	130	----	----
		EG093A-T: Zinc	7440-66-6	50 µg/L	109	----	70	130	----	----

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: EP1210463	Page	: 1 of 39
Client	: RPS ENVIRONMENT PTY LTD	Laboratory	: Environmental Division Perth
Contact	: MR ALAN FOLEY	Contact	: Scott James
Address	: 38 STATION STREET SUBIACO WA, AUSTRALIA 6008	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: alan.foley@rpsgroup.com.au	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 93824744	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 93821177	Facsimile	: +61-8-9209 7600
Project	: I12147 Burswood Stadium	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 14-DEC-2012
C-O-C number	: ----	Issue Date	: 08-JAN-2013
Sampler	: JA and AJ	No. of samples received	: 17
Site	: Burswood Stadium	No. of samples analysed	: 17
Quote number	: EP/689/12 V4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



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.

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

- **EK026SF: Poor matrix spike recovery due to sample matrix interference. Confirmed by re-analysis.**
- **EP074: Bromodichloromethane recovery fall outside of ALS Dynamic Lower Control Limits. However, all samples are <LOR so no further actions required.**
- **EP202: Poor matrix spike recoveries for compounds Picloram and Clopyralid due to matrix interferences. Confirmed by re-extraction and re-analysis.**



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Benjamin Nicholson	Metals Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics
Gaston Allende	R&D Chemist	Sydney Organics
Hoa Nguyen	Senior Inorganic Chemist	Sydney Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
Rassem Ayoubi	Senior Organic Chemist	Perth Organics
Sarah Millington	Senior Inorganic Chemist	Sydney Inorganics
Scott James	Laboratory Manager	Perth Inorganics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				T01W	T02W	T25W	T26W	T27W
				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210463-001	EP1210463-002	EP1210463-003	EP1210463-004	EP1210463-005
ED093T: Total Major Cations								
Magnesium	7439-95-4	1	mg/L	940	971	940	935	921
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG050T: Total Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EG093T: Total Metals in Saline Water by ORC-ICPMS								
Aluminium	7429-90-5	5	µg/L	104	114	104	286	172
Selenium	7782-49-2	2	µg/L	<2	<2	<2	<2	<2
Iron	7439-89-6	5	µg/L	199	201	184	525	317
Arsenic	7440-38-2	0.5	µg/L	1.0	1.0	1.0	1.0	1.1
Boron	7440-42-8	100	µg/L	3070	3010	2920	3040	3080
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
Copper	7440-50-8	1	µg/L	9	3	10	10	8
Lead	7439-92-1	0.2	µg/L	4.0	2.3	1.5	2.1	1.1
Manganese	7439-96-5	0.5	µg/L	54.5	32.8	43.9	46.1	45.3
Molybdenum	7439-98-7	0.1	µg/L	8.4	8.4	8.4	8.4	9.3
Nickel	7440-02-0	0.5	µg/L	1.0	0.8	0.9	0.7	0.9
Tin	7440-31-5	5	µg/L	<5	<5	<5	<5	<5
Zinc	7440-66-6	5	µg/L	107	7	10	12	10
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.09	0.09	0.08	0.11	0.08
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	----	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	0.7	0.6	1.0	0.8	0.9
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				T01W	T02W	T25W	T26W	T27W
				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210463-001	EP1210463-002	EP1210463-003	EP1210463-004	EP1210463-005
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser - Continued								
^ Total Nitrogen as N	----	0.1	mg/L	0.7	0.6	1.0	0.8	0.9
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.06	0.05	0.11	0.04	0.09
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	----	0.01	mg/L	0.02	0.01	0.03	0.01	0.02
EK085M: Sulfide as S2-								
Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	----	<0.1	<0.1	<0.1
EP045: Volatile Acids as CH3COOH								
Volatile Acids as Acetic Acid	----	5	mg/L	75	----	68	83	68
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				T01W	T02W	T25W	T26W	T27W
				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210463-001	EP1210463-002	EP1210463-003	EP1210463-004	EP1210463-005
EP074E: Halogenated Aliphatic Compounds - Continued								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				T01W	T02W	T25W	T26W	T27W
				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210463-001	EP1210463-002	EP1210463-003	EP1210463-004	EP1210463-005
EP074F: Halogenated Aromatic Compounds - Continued								
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-Methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	208-96-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Acenaphthene	83-32-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Fluorene	86-73-7	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Phenanthrene	85-01-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Anthracene	120-12-7	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Fluoranthene	206-44-0	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Pyrene	129-00-0	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Benz(a)anthracene	56-55-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Chrysene	218-01-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02



Analytical Results

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				T01W	T02W	T25W	T26W	T27W
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Compound	CAS Number	LOR	Unit	EP1210463-001	EP1210463-002	EP1210463-003	EP1210463-004	EP1210463-005
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(b)fluoranthene	205-99-2	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(k)fluoranthene	207-08-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(a)pyrene	50-32-8	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Indeno(1.2.3.cd)pyrene	193-39-5	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Dibenz(a,h)anthracene	53-70-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(g,h,i)perylene	191-24-2	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
^ Total PAH	----	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
^ Benzo(a)pyrene TEQ (WHO)	----	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	80	<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	80	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	----	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
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
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Carbophenothion	786-19-6	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10



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Compound	CAS Number	LOR	Unit	EP1210463-001	EP1210463-002	EP1210463-003	EP1210463-004	EP1210463-005
EP130A: Organophosphorus Pesticides (Ultra-trace) - Continued								
Chlorfenvinphos (Z)	18708-87-7	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Chlorpyrifos	2921-88-2	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Demeton-S-methyl	919-86-8	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Diazinon	333-41-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Dichlorvos	62-73-7	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Dimethoate	60-51-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Ethion	563-12-2	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Fenamiphos	22224-92-6	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Fenthion	55-38-9	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Malathion	121-75-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Azinphos Methyl	86-50-0	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Monocrotophos	6923-22-4	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Parathion	56-38-2	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Parathion-methyl	298-00-0	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Pirimphos-ethyl	23505-41-1	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Prothiofos	34643-46-4	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
EP131A: Organochlorine Pesticides								
Aldrin	309-00-2	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
alpha-BHC	319-84-6	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
beta-BHC	319-85-7	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
delta-BHC	319-86-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
4.4'-DDD	72-54-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
4.4'-DDE	72-55-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
4.4'-DDT	50-29-3	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
^ Sum of DDD + DDE + DDT	----	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Dieldrin	60-57-1	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
alpha-Endosulfan	959-98-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
beta-Endosulfan	33213-65-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endosulfan sulfate	1031-07-8	0.010	µg/L	<0.189	<0.194	<0.189	<0.190	<0.190
^ Endosulfan (sum)	115-29-7	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endrin	72-20-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endrin aldehyde	7421-93-4	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endrin ketone	53494-70-5	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010



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Compound	CAS Number	LOR	Unit	EP1210463-001	EP1210463-002	EP1210463-003	EP1210463-004	EP1210463-005
EP131A: Organochlorine Pesticides - Continued								
Heptachlor	76-44-8	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	1024-57-3	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
gamma-BHC	58-89-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Methoxychlor	72-43-5	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
cis-Chlordane	5103-71-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
trans-Chlordane	5103-74-2	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
^ Total Chlordane (sum)	----	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Oxychlordane	27304-13-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
EP131B: Polychlorinated Biphenyls (as Aroclors)								
Total Polychlorinated biphenyls	----	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1016	12674-11-2	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1221	11104-28-2	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1232	11141-16-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1242	53469-21-9	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1248	12672-29-6	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1254	11097-69-1	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1260	11096-82-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
EP201: Carbamate Pesticides by LCMS								
Oxamyl	23135-22-0	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methomyl	16752-77-5	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
3-Hydroxy Carbofuran	16655-82-6	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Aldicarb	116-06-3	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Bendiocarb	22781-23-3	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Thiodicarb	59669-26-0	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Carbofuran	1563-66-2	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Carbaryl	63-25-2	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methiocarb	2032-65-7	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	<10	<10	<10
2,4-DB	94-82-6	10	µg/L	<10	<10	<10	<10	<10
Dicamba	1918-00-9	10	µg/L	<10	<10	<10	<10	<10
Mecoprop	93-65-2	10	µg/L	<10	<10	<10	<10	<10



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Compound	CAS Number	LOR	Unit	EP1210463-001	EP1210463-002	EP1210463-003	EP1210463-004	EP1210463-005
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued								
MCPA	94-74-6	10	µg/L	<10	<10	<10	<10	<10
2,4-DP	120-36-5	10	µg/L	<10	<10	<10	<10	<10
2,4-D	94-75-7	10	µg/L	<10	<10	<10	<10	<10
Triclopyr	55335-06-3	10	µg/L	<10	<10	<10	<10	<10
2,4,5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	<10	<10	<10
2,4,5-T	93-76-5	10	µg/L	<10	<10	<10	<10	<10
MCPB	94-81-5	10	µg/L	<10	<10	<10	<10	<10
Picloram	1918-02-1	10	µg/L	<10	<10	<10	<10	<10
Clopyralid	1702-17-6	10	µg/L	<10	<10	<10	<10	<10
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	<10	<10	<10
2,6-D	575-90-6	10	µg/L	<10	<10	<10	<10	<10
2,4,6-T	575-89-3	10	µg/L	<10	<10	<10	<10	<10
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	81.0	82.8	86.5	94.6	94.1
Toluene-D8	2037-26-5	0.1	%	104	106	102	101	100
4-Bromofluorobenzene	460-00-4	0.1	%	95.3	96.6	94.2	93.2	94.7
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	33.1	31.9	30.2	37.7	33.9
2-Chlorophenol-D4	93951-73-6	0.1	%	68.3	68.6	65.6	79.1	72.4
2,4,6-Tribromophenol	118-79-6	0.1	%	88.9	71.0	73.0	94.1	74.8
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	65.5	66.7	64.0	76.4	69.4
Anthracene-d10	1719-06-8	0.1	%	85.2	84.3	82.4	94.3	82.3
4-Terphenyl-d14	1718-51-0	0.1	%	105	102	121	96.9	106
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	94.1	95.3	100	107	108
Toluene-D8	2037-26-5	0.1	%	98.3	99.2	98.7	95.4	95.7
4-Bromofluorobenzene	460-00-4	0.1	%	96.8	93.3	92.2	91.2	90.6
EP130S: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	78.4	85.2	80.4	79.9	71.5
EP131S: OC Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	89.2	122	118	116	122
EP131T: PCB Surrogate								



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Compound	CAS Number	LOR	Unit	EP1210463-001	EP1210463-002	EP1210463-003	EP1210463-004	EP1210463-005
EP131T: PCB Surrogate - Continued								
Decachlorobiphenyl	2051-24-3	0.1	%	106	83.0	91.0	106	111
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	108	106	106	106	111
Anthracene-d10	1719-06-8	0.1	%	88.0	91.6	87.6	85.6	92.4
4-Terphenyl-d14	1718-51-0	0.1	%	98.4	90.4	87.6	93.1	101
EP201S: Carbamate Surrogate								
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	0.1	%	91.0	83.9	72.9	73.3	67.6
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	109	129	127	120	99.6



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				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210463-006	EP1210463-007	EP1210463-008	EP1210463-009	EP1210463-010
ED093T: Total Major Cations								
Magnesium	7439-95-4	1	mg/L	970	929	<1	<1	<1
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG050T: Total Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EG093T: Total Metals in Saline Water by ORC-ICPMS								
Aluminium	7429-90-5	5	µg/L	88	144	----	----	----
Selenium	7782-49-2	2	µg/L	<2	<2	----	----	----
Iron	7439-89-6	5	µg/L	155	269	----	----	----
Arsenic	7440-38-2	0.5	µg/L	1.0	1.0	----	----	----
Boron	7440-42-8	100	µg/L	3180	3080	----	----	----
Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	----	----	----
Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	----	----	----
Copper	7440-50-8	1	µg/L	7	12	----	----	----
Lead	7439-92-1	0.2	µg/L	0.6	2.2	----	----	----
Manganese	7439-96-5	0.5	µg/L	34.2	53.5	----	----	----
Molybdenum	7439-98-7	0.1	µg/L	8.6	8.9	----	----	----
Nickel	7440-02-0	0.5	µg/L	0.7	0.8	----	----	----
Tin	7440-31-5	5	µg/L	<5	<5	----	----	----
Zinc	7440-66-6	5	µg/L	8	11	----	----	----
EG094T: Total metals in Fresh water by ORC-ICPMS								
Aluminium	7429-90-5	5	µg/L	----	----	<5	<5	<5
Iron	7439-89-6	2	µg/L	----	----	<2	<2	<2
Selenium	7782-49-2	0.2	µg/L	----	----	<0.2	<0.2	<0.2
Arsenic	7440-38-2	0.2	µg/L	----	----	<0.2	<0.2	<0.2
Barium	7440-39-3	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Cadmium	7440-43-9	0.05	µg/L	----	----	<0.05	<0.05	<0.05
Chromium	7440-47-3	0.2	µg/L	----	----	<0.2	<0.2	<0.2
Copper	7440-50-8	0.5	µg/L	----	----	0.6	0.6	0.6
Lead	7439-92-1	0.1	µg/L	----	----	<0.1	0.1	0.2
Manganese	7439-96-5	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Molybdenum	7439-98-7	0.1	µg/L	----	----	<0.1	<0.1	<0.1
Nickel	7440-02-0	0.5	µg/L	----	----	<0.5	<0.5	<0.5



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Compound	CAS Number	LOR	Unit	EP1210463-006	EP1210463-007	EP1210463-008	EP1210463-009	EP1210463-010
EG094T: Total metals in Fresh water by ORC-ICPMS - Continued								
Tin	7440-31-5	0.2	µg/L	----	----	<0.2	<0.2	<0.2
Zinc	7440-66-6	1	µg/L	----	----	<1	2	3
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.10	0.09	<0.01	<0.01	<0.01
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	----	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	0.8	1.0	<0.1	<0.1	<0.1
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
Total Nitrogen as N	----	0.1	mg/L	0.8	1.0	<0.1	<0.1	<0.1
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.23	0.10	<0.01	<0.01	<0.01
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	----	0.01	mg/L	0.01	0.02	<0.01	<0.01	<0.01
EK085M: Sulfide as S2-								
Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
EP045: Volatile Acids as CH3COOH								
Volatile Acids as Acetic Acid	----	5	mg/L	60	68	30	30	30
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

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				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210463-006	EP1210463-007	EP1210463-008	EP1210463-009	EP1210463-010
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5



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Compound	CAS Number	LOR	Unit	EP1210463-006	EP1210463-007	EP1210463-008	EP1210463-009	EP1210463-010
EP074E: Halogenated Aliphatic Compounds - Continued								
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



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Compound	CAS Number	LOR	Unit	EP1210463-006	EP1210463-007	EP1210463-008	EP1210463-009	EP1210463-010
EP075(SIM)A: Phenolic Compounds - Continued								
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-Methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	208-96-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Acenaphthene	83-32-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Fluorene	86-73-7	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Phenanthrene	85-01-8	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Anthracene	120-12-7	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Fluoranthene	206-44-0	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Pyrene	129-00-0	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Benz(a)anthracene	56-55-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Chrysene	218-01-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(b)fluoranthene	205-99-2	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(k)fluoranthene	207-08-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(a)pyrene	50-32-8	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Indeno(1.2.3.cd)pyrene	193-39-5	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Dibenz(a,h)anthracene	53-70-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(g,h,i)perylene	191-24-2	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
^ Total PAH	----	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
^ Benzo(a)pyrene TEQ (WHO)	----	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
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 2010 Draft								
C6 - C10 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	----	20	µg/L	<20	<20	<20	<20	<20



Analytical Results

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				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210463-006	EP1210463-007	EP1210463-008	EP1210463-009	EP1210463-010
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft - Continued								
>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
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
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Carbophenothion	786-19-6	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Chlorfenvinphos (Z)	18708-87-7	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Chlorpyrifos	2921-88-2	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Demeton-S-methyl	919-86-8	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Diazinon	333-41-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Dichlorvos	62-73-7	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Dimethoate	60-51-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Ethion	563-12-2	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Fenamiphos	22224-92-6	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Fenthion	55-38-9	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Malathion	121-75-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Azinphos Methyl	86-50-0	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Monocrotophos	6923-22-4	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Parathion	56-38-2	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Parathion-methyl	298-00-0	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Pirimphos-ethyl	23505-41-1	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Prothiofos	34643-46-4	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10



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Compound	CAS Number	LOR	Unit	EP1210463-006	EP1210463-007	EP1210463-008	EP1210463-009	EP1210463-010
EP131A: Organochlorine Pesticides								
Aldrin	309-00-2	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
alpha-BHC	319-84-6	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
beta-BHC	319-85-7	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
delta-BHC	319-86-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
4,4'-DDD	72-54-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
4,4'-DDE	72-55-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
4,4'-DDT	50-29-3	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
^ Sum of DDD + DDE + DDT	----	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Dieldrin	60-57-1	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
alpha-Endosulfan	959-98-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
beta-Endosulfan	33213-65-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endosulfan sulfate	1031-07-8	0.010	µg/L	<0.190	<0.190	<0.190	<0.190	<0.190
^ Endosulfan (sum)	115-29-7	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endrin	72-20-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endrin aldehyde	7421-93-4	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endrin ketone	53494-70-5	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Heptachlor	76-44-8	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	1024-57-3	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
gamma-BHC	58-89-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Methoxychlor	72-43-5	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
cis-Chlordane	5103-71-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
trans-Chlordane	5103-74-2	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
^ Total Chlordane (sum)	----	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Oxychlordane	27304-13-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
EP131B: Polychlorinated Biphenyls (as Aroclors)								
Total Polychlorinated biphenyls	----	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1016	12674-11-2	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1221	11104-28-2	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1232	11141-16-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1242	53469-21-9	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1248	12672-29-6	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1254	11097-69-1	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1260	11096-82-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				T28W	TZW	TWR	TWB	TZR
				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210463-006	EP1210463-007	EP1210463-008	EP1210463-009	EP1210463-010
EP131B: Polychlorinated Biphenyls (as Aroclors) - Continued								
EP201: Carbamate Pesticides by LCMS								
Oxamyl	23135-22-0	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methomyl	16752-77-5	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
3-Hydroxy Carbofuran	16655-82-6	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Aldicarb	116-06-3	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Bendiocarb	22781-23-3	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Thiodicarb	59669-26-0	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Carbofuran	1563-66-2	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Carbaryl	63-25-2	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methiocarb	2032-65-7	0.2	µg/L	0.2	<0.2	<0.2	<0.2	<0.2
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	<10	<10	<10
2,4-DB	94-82-6	10	µg/L	<10	<10	<10	<10	<10
Dicamba	1918-00-9	10	µg/L	<10	<10	<10	<10	<10
Mecoprop	93-65-2	10	µg/L	<10	<10	<10	<10	<10
MCPA	94-74-6	10	µg/L	<10	<10	<10	<10	<10
2,4-DP	120-36-5	10	µg/L	<10	<10	<10	<10	<10
2,4-D	94-75-7	10	µg/L	<10	<10	<10	<10	<10
Triclopyr	55335-06-3	10	µg/L	<10	<10	<10	<10	<10
2,4,5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	<10	<10	<10
2,4,5-T	93-76-5	10	µg/L	<10	<10	<10	<10	<10
MCPB	94-81-5	10	µg/L	<10	<10	<10	<10	<10
Picloram	1918-02-1	10	µg/L	<10	<10	<10	<10	<10
Clopyralid	1702-17-6	10	µg/L	<10	<10	<10	<10	<10
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	<10	<10	<10
2,6-D	575-90-6	10	µg/L	<10	<10	<10	<10	<10
2,4,6-T	575-89-3	10	µg/L	<10	<10	<10	<10	<10
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	93.2	94.0	93.5	94.6	112
Toluene-D8	2037-26-5	0.1	%	104	103	100	101	93.1
4-Bromofluorobenzene	460-00-4	0.1	%	93.6	97.1	93.6	94.9	92.6
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	38.2	29.6	22.9	24.2	32.5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

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				T28W	TZW	TWR	TWB	TZR
				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210463-006	EP1210463-007	EP1210463-008	EP1210463-009	EP1210463-010
EP075(SIM)S: Phenolic Compound Surrogates - Continued								
2-Chlorophenol-D4	93951-73-6	0.1	%	84.0	65.1	41.7	56.3	73.8
2,4,6-Tribromophenol	118-79-6	0.1	%	103	74.7	47.4	68.8	92.2
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	80.8	63.5	37.8	61.7	78.4
Anthracene-d10	1719-06-8	0.1	%	102	76.0	44.9	76.6	94.0
4-Terphenyl-d14	1718-51-0	0.1	%	129	97.3	41.7	80.2	102
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	108	110	109	110	127
Toluene-D8	2037-26-5	0.1	%	98.2	97.6	95.3	94.8	88.7
4-Bromofluorobenzene	460-00-4	0.1	%	91.2	92.3	89.3	89.4	90.1
EP130S: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	84.4	80.8	70.6	80.1	76.1
EP131S: OC Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	117	109	122	126	106
EP131T: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	115	112	111	135	136
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	108	104	107	113	113
Anthracene-d10	1719-06-8	0.1	%	84.0	94.4	94.8	99.6	93.2
4-Terphenyl-d14	1718-51-0	0.1	%	96.0	107	82.8	92.2	85.2
EP201S: Carbamate Surrogate								
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	0.1	%	68.4	74.6	109	74.0	75.0
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	114	106	106	95.4	128



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TZB	T03P	T04P	T05P	T06P
				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210463-011	EP1210463-012	EP1210463-013	EP1210463-014	EP1210463-015
ED093T: Total Major Cations								
Magnesium	7439-95-4	1	mg/L	<1	992	1040	958	953
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG050T: Total Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EG093T: Total Metals in Saline Water by ORC-ICPMS								
Aluminium	7429-90-5	5	µg/L	----	18200	295	12800	7850
Selenium	7782-49-2	2	µg/L	----	<2	<2	<2	<2
Iron	7439-89-6	5	µg/L	----	22500	1520	15800	16900
Arsenic	7440-38-2	0.5	µg/L	----	9.0	2.4	5.4	5.4
Boron	7440-42-8	100	µg/L	----	3260	3280	3260	3170
Cadmium	7440-43-9	0.2	µg/L	----	0.2	<0.2	<0.2	<0.2
Chromium	7440-47-3	0.5	µg/L	----	37.7	<0.5	24.7	17.2
Copper	7440-50-8	1	µg/L	----	34	<1	17	8
Lead	7439-92-1	0.2	µg/L	----	37.2	0.8	13.1	7.8
Manganese	7439-96-5	0.5	µg/L	----	1260	738	154	436
Molybdenum	7439-98-7	0.1	µg/L	----	12.5	7.0	14.1	10.1
Nickel	7440-02-0	0.5	µg/L	----	12.9	0.7	14.5	5.8
Tin	7440-31-5	5	µg/L	----	<5	<5	<5	<5
Zinc	7440-66-6	5	µg/L	----	147	<5	51	13
EG094T: Total metals in Fresh water by ORC-ICPMS								
Aluminium	7429-90-5	5	µg/L	<5	----	----	----	----
Iron	7439-89-6	2	µg/L	3	----	----	----	----
Selenium	7782-49-2	0.2	µg/L	<0.2	----	----	----	----
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	----	----	----	----
Copper	7440-50-8	0.5	µg/L	1.0	----	----	----	----
Lead	7439-92-1	0.1	µg/L	0.5	----	----	----	----
Manganese	7439-96-5	0.5	µg/L	<0.5	----	----	----	----
Molybdenum	7439-98-7	0.1	µg/L	<0.1	----	----	----	----
Nickel	7440-02-0	0.5	µg/L	<0.5	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

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				TZB	T03P	T04P	T05P	T06P
				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210463-011	EP1210463-012	EP1210463-013	EP1210463-014	EP1210463-015
EG094T: Total metals in Fresh water by ORC-ICPMS - Continued								
Tin	7440-31-5	0.2	µg/L	<0.2	----	----	----	----
Zinc	7440-66-6	1	µg/L	3	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	2.66	1.57	0.15	3.89
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	----	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	<0.1	4.5	1.2	1.3	4.6
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
Total Nitrogen as N	----	0.1	mg/L	<0.1	4.5	1.2	1.3	4.6
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	<0.01	0.80	0.77	0.17	0.44
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	----	0.01	mg/L	<0.01	0.46	0.34	<0.01	0.05
EK085M: Sulfide as S2-								
Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	----	<0.1	<0.1
EP045: Volatile Acids as CH3COOH								
Volatile Acids as Acetic Acid	----	5	mg/L	30	106	----	90	90
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

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				TZB	T03P	T04P	T05P	T06P
				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210463-011	EP1210463-012	EP1210463-013	EP1210463-014	EP1210463-015
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5



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				TZB	T03P	T04P	T05P	T06P
				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210463-011	EP1210463-012	EP1210463-013	EP1210463-014	EP1210463-015
EP074E: Halogenated Aliphatic Compounds - Continued								
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0



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				TZB	T03P	T04P	T05P	T06P
				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210463-011	EP1210463-012	EP1210463-013	EP1210463-014	EP1210463-015
EP075(SIM)A: Phenolic Compounds - Continued								
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-Methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	208-96-8	0.02	µg/L	<0.02	0.14	<0.02	<0.02	<0.02
Acenaphthene	83-32-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Fluorene	86-73-7	0.02	µg/L	<0.02	0.04	<0.02	<0.02	<0.02
Phenanthrene	85-01-8	0.02	µg/L	<0.02	0.05	<0.02	<0.02	<0.02
Anthracene	120-12-7	0.02	µg/L	<0.02	0.12	<0.02	<0.02	<0.02
Fluoranthene	206-44-0	0.02	µg/L	<0.02	0.11	<0.02	0.05	<0.02
Pyrene	129-00-0	0.02	µg/L	<0.02	1.21	<0.02	0.06	<0.02
Benz(a)anthracene	56-55-3	0.02	µg/L	<0.02	0.10	<0.02	0.02	<0.02
Chrysene	218-01-9	0.02	µg/L	<0.02	0.10	<0.02	0.03	<0.02
Benzo(b)fluoranthene	205-99-2	0.02	µg/L	<0.02	0.24	<0.02	0.03	<0.02
Benzo(k)fluoranthene	207-08-9	0.02	µg/L	<0.02	0.08	<0.02	<0.02	<0.02
Benzo(a)pyrene	50-32-8	0.005	µg/L	<0.005	0.254	<0.005	0.033	<0.005
Indeno(1.2.3.cd)pyrene	193-39-5	0.02	µg/L	<0.02	0.11	<0.02	<0.02	<0.02
Dibenz(a,h)anthracene	53-70-3	0.02	µg/L	<0.02	0.03	<0.02	<0.02	<0.02
Benzo(g,h,i)perylene	191-24-2	0.02	µg/L	<0.02	0.15	<0.02	<0.02	<0.02
^ Total PAH	----	0.005	µg/L	<0.005	2.73	<0.005	0.223	<0.005
^ Benzo(a)pyrene TEQ (WHO)	----	0.005	µg/L	<0.005	0.340	<0.005	0.038	<0.005
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	200	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	130	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	330	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	----	20	µg/L	<20	<20	<20	<20	<20



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TZB	T03P	T04P	T05P	T06P
				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210463-011	EP1210463-012	EP1210463-013	EP1210463-014	EP1210463-015
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft - Continued								
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	300	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	300	<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
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Carbophenothion	786-19-6	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Chlorfenvinphos (Z)	18708-87-7	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Chlorpyrifos	2921-88-2	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Demeton-S-methyl	919-86-8	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Diazinon	333-41-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Dichlorvos	62-73-7	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Dimethoate	60-51-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Ethion	563-12-2	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Fenamiphos	22224-92-6	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Fenthion	55-38-9	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Malathion	121-75-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Azinphos Methyl	86-50-0	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Monocrotophos	6923-22-4	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Parathion	56-38-2	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Parathion-methyl	298-00-0	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Pirimphos-ethyl	23505-41-1	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Prothiofos	34643-46-4	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	TZB	T03P	T04P	T05P	T06P
				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
				EP1210463-011	EP1210463-012	EP1210463-013	EP1210463-014	EP1210463-015
EP131A: Organochlorine Pesticides								
Aldrin	309-00-2	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
alpha-BHC	319-84-6	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
beta-BHC	319-85-7	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
delta-BHC	319-86-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
4,4'-DDD	72-54-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
4,4'-DDE	72-55-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
4,4'-DDT	50-29-3	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
^ Sum of DDD + DDE + DDT	----	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Dieldrin	60-57-1	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
alpha-Endosulfan	959-98-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
beta-Endosulfan	33213-65-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endosulfan sulfate	1031-07-8	0.010	µg/L	<0.189	<0.189	<0.189	<0.190	<0.190
^ Endosulfan (sum)	115-29-7	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endrin	72-20-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endrin aldehyde	7421-93-4	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Endrin ketone	53494-70-5	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Heptachlor	76-44-8	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	1024-57-3	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
gamma-BHC	58-89-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Methoxychlor	72-43-5	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
cis-Chlordane	5103-71-9	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
trans-Chlordane	5103-74-2	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
^ Total Chlordane (sum)	----	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Oxychlordane	27304-13-8	0.010	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
EP131B: Polychlorinated Biphenyls (as Aroclors)								
Total Polychlorinated biphenyls	----	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1016	12674-11-2	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1221	11104-28-2	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1232	11141-16-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1242	53469-21-9	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1248	12672-29-6	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1254	11097-69-1	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1260	11096-82-5	0.10	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TZB	T03P	T04P	T05P	T06P
				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210463-011	EP1210463-012	EP1210463-013	EP1210463-014	EP1210463-015
EP131B: Polychlorinated Biphenyls (as Aroclors) - Continued								
EP201: Carbamate Pesticides by LCMS								
Oxamyl	23135-22-0	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methomyl	16752-77-5	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
3-Hydroxy Carbofuran	16655-82-6	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Aldicarb	116-06-3	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Bendiocarb	22781-23-3	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Thiodicarb	59669-26-0	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Carbofuran	1563-66-2	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Carbaryl	63-25-2	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methiocarb	2032-65-7	0.2	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	<10	<10	<10
2,4-DB	94-82-6	10	µg/L	<10	<10	<10	<10	<10
Dicamba	1918-00-9	10	µg/L	<10	<10	<10	<10	<10
Mecoprop	93-65-2	10	µg/L	<10	<10	<10	<10	<10
MCPA	94-74-6	10	µg/L	<10	<10	<10	<10	<10
2,4-DP	120-36-5	10	µg/L	<10	<10	<10	<10	<10
2,4-D	94-75-7	10	µg/L	<10	<10	<10	<10	<10
Triclopyr	55335-06-3	10	µg/L	<10	<10	<10	<10	<10
2,4,5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	<10	<10	<10
2,4,5-T	93-76-5	10	µg/L	<10	<10	<10	<10	<10
MCPB	94-81-5	10	µg/L	<10	<10	<10	<10	<10
Picloram	1918-02-1	10	µg/L	<10	<10	<10	<10	<10
Clopyralid	1702-17-6	10	µg/L	<10	<10	<10	<10	<10
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	<10	<10	<10
2,6-D	575-90-6	10	µg/L	<10	<10	<10	<10	<10
2,4,6-T	575-89-3	10	µg/L	<10	<10	<10	<10	<10
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	98.8	96.7	115	103	102
Toluene-D8	2037-26-5	0.1	%	99.7	99.4	94.7	100	98.9
4-Bromofluorobenzene	460-00-4	0.1	%	94.3	94.6	89.8	93.9	91.1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	32.4	33.7	37.5	32.3	30.5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				TZB	T03P	T04P	T05P	T06P
				13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00	13-DEC-2012 15:00
Compound	CAS Number	LOR	Unit	EP1210463-011	EP1210463-012	EP1210463-013	EP1210463-014	EP1210463-015
EP075(SIM)S: Phenolic Compound Surrogates - Continued								
2-Chlorophenol-D4	93951-73-6	0.1	%	72.7	71.4	79.0	68.1	65.8
2,4,6-Tribromophenol	118-79-6	0.1	%	87.5	92.8	89.3	81.9	73.0
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	75.1	79.0	84.3	67.7	66.9
Anthracene-d10	1719-06-8	0.1	%	90.2	92.8	98.4	82.1	81.2
4-Terphenyl-d14	1718-51-0	0.1	%	105	93.8	107	92.0	93.7
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	113	112	125	119	115
Toluene-D8	2037-26-5	0.1	%	96.1	93.5	98.5	94.8	94.3
4-Bromofluorobenzene	460-00-4	0.1	%	91.0	86.5	90.8	87.0	87.6
EP130S: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	57.9	50.5	79.8	77.7	77.7
EP131S: OC Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	122	121	124	125	121
EP131T: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	98.4	106	123	132	126
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	107	113	100	112	110
Anthracene-d10	1719-06-8	0.1	%	91.6	99.2	92.0	93.6	99.2
4-Terphenyl-d14	1718-51-0	0.1	%	86.0	94.7	87.6	94.4	86.0
EP201S: Carbamate Surrogate								
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	0.1	%	73.0	70.9	65.2	65.8	67.4
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	106	101	107	104	113



Analytical Results

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

Client sample ID

Client sampling date / time

				T07P	T08P	---	---	---
				13-DEC-2012 15:00	13-DEC-2012 15:00	---	---	---
				EP1210463-016	EP1210463-017	---	---	---
Compound	CAS Number	LOR	Unit					
ED093T: Total Major Cations								
Magnesium	7439-95-4	1	mg/L	972	960	---	---	---
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	---	---	---
EG050T: Total Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	---	---	---
EG093T: Total Metals in Saline Water by ORC-ICPMS								
Aluminium	7429-90-5	5	µg/L	14000	44800	---	---	---
Selenium	7782-49-2	2	µg/L	<2	4	---	---	---
Iron	7439-89-6	5	µg/L	16800	71000	---	---	---
Arsenic	7440-38-2	0.5	µg/L	6.4	19.2	---	---	---
Boron	7440-42-8	100	µg/L	3340	3170	---	---	---
Cadmium	7440-43-9	0.2	µg/L	<0.2	2.4	---	---	---
Chromium	7440-47-3	0.5	µg/L	32.0	100	---	---	---
Copper	7440-50-8	1	µg/L	47	248	---	---	---
Lead	7439-92-1	0.2	µg/L	44.2	147	---	---	---
Manganese	7439-96-5	0.5	µg/L	299	1040	---	---	---
Molybdenum	7439-98-7	0.1	µg/L	11.9	23.4	---	---	---
Nickel	7440-02-0	0.5	µg/L	16.0	44.3	---	---	---
Tin	7440-31-5	5	µg/L	5	16	---	---	---
Zinc	7440-66-6	5	µg/L	156	1460	---	---	---
EK026SF: Total CN by Segmented Flow Analyser								
Total Cyanide	57-12-5	0.004	mg/L	<0.004	<0.004	---	---	---
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	1.90	0.46	---	---	---
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	---	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	<0.01	<0.01	---	---	---
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	---	0.01	mg/L	<0.01	<0.01	---	---	---
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	---	0.1	mg/L	7.5	3.2	---	---	---
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								



Analytical Results

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

Client sample ID

				T07P	T08P	---	---	---
				13-DEC-2012 15:00	13-DEC-2012 15:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210463-016	EP1210463-017	---	---	---
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser - Continued								
^ Total Nitrogen as N	----	0.1	mg/L	7.5	3.2	---	---	---
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	1.08	0.39	---	---	---
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	----	0.01	mg/L	0.98	0.07	---	---	---
EK085M: Sulfide as S2-								
Sulfide as S2-	18496-25-8	0.1	mg/L	----	<0.1	---	---	---
EP045: Volatile Acids as CH3COOH								
Volatile Acids as Acetic Acid	----	5	mg/L	----	482	---	---	---
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	---	---	---
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	---	---	---
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	---	---	---
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	---	---	---
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	---	---	---
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	---	---	---
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	---	---	---
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	---	---	---
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	---	---	---
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	---	---	---
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	---	---	---
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	---	---	---
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	---	---	---
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	---	---	---
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	---	---	---
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	---	---	---
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	---	---	---
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	---	---	---
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	---	---	---
EP074E: Halogenated Aliphatic Compounds								



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

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				T07P	T08P	---	---	---
				13-DEC-2012 15:00	13-DEC-2012 15:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210463-016	EP1210463-017	---	---	---
EP074E: Halogenated Aliphatic Compounds - Continued								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	---	---	---
Chloromethane	74-87-3	50	µg/L	<50	<50	---	---	---
Vinyl chloride	75-01-4	50	µg/L	<50	<50	---	---	---
Bromomethane	74-83-9	50	µg/L	<50	<50	---	---	---
Chloroethane	75-00-3	50	µg/L	<50	<50	---	---	---
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	---	---	---
1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	---	---	---
Iodomethane	74-88-4	5	µg/L	<5	<5	---	---	---
trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	---	---	---
1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	---	---	---
cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	---	---	---
1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	---	---	---
1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	---	---	---
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	---	---	---
1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	---	---	---
Trichloroethene	79-01-6	5	µg/L	<5	<5	---	---	---
Dibromomethane	74-95-3	5	µg/L	<5	<5	---	---	---
1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	---	---	---
1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	---	---	---
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	---	---	---
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	---	---	---
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	---	---	---
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	---	---	---
1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	---	---	---
Pentachloroethane	76-01-7	5	µg/L	<5	<5	---	---	---
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	---	---	---
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	---	---	---
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	---	---	---
Bromobenzene	108-86-1	5	µg/L	<5	<5	---	---	---
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	---	---	---
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	---	---	---
1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

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				T07P	T08P	---	---	---
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Compound	CAS Number	LOR	Unit	EP1210463-016	EP1210463-017	---	---	---
EP074F: Halogenated Aromatic Compounds - Continued								
1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	---	---	---
1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	---	---	---
1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	---	---	---
1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	---	---	---
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	---	---	---
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	---	---	---
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	---	---	---
Bromoform	75-25-2	5	µg/L	<5	<5	---	---	---
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	---	---	---
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	---	---	---
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	---	---	---
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	---	---	---
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	---	---	---
2,4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	---	---	---
4-Chloro-3-Methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	---	---	---
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	---	---	---
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	---	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.02	µg/L	0.04	<0.02	---	---	---
Acenaphthylene	208-96-8	0.02	µg/L	0.11	0.09	---	---	---
Acenaphthene	83-32-9	0.02	µg/L	<0.02	<0.02	---	---	---
Fluorene	86-73-7	0.02	µg/L	0.02	0.02	---	---	---
Phenanthrene	85-01-8	0.02	µg/L	0.06	0.18	---	---	---
Anthracene	120-12-7	0.02	µg/L	0.15	0.21	---	---	---
Fluoranthene	206-44-0	0.02	µg/L	0.28	0.22	---	---	---
Pyrene	129-00-0	0.02	µg/L	0.29	0.46	---	---	---
Benz(a)anthracene	56-55-3	0.02	µg/L	0.14	0.12	---	---	---
Chrysene	218-01-9	0.02	µg/L	0.15	0.10	---	---	---



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Compound	CAS Number	LOR	Unit	EP1210463-016	EP1210463-017	---	---	---
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(b)fluoranthene	205-99-2	0.02	µg/L	0.20	0.18	---	---	---
Benzo(k)fluoranthene	207-08-9	0.02	µg/L	0.11	0.06	---	---	---
Benzo(a)pyrene	50-32-8	0.005	µg/L	0.241	0.176	---	---	---
Indeno(1.2.3.cd)pyrene	193-39-5	0.02	µg/L	0.13	0.08	---	---	---
Dibenz(a,h)anthracene	53-70-3	0.02	µg/L	0.04	0.02	---	---	---
Benzo(g,h,i)perylene	191-24-2	0.02	µg/L	0.16	0.11	---	---	---
^ Total PAH	----	0.005	µg/L	2.12	2.03	---	---	---
^ Benzo(a)pyrene TEQ (WHO)	----	0.005	µg/L	0.342	0.242	---	---	---
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	320	300	---	---	---
^ C10 - C36 Fraction (sum)	----	50	µg/L	320	300	---	---	---
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	20	µg/L	<20	<20	---	---	---
^ C6 - C10 Fraction minus BTEX (F1)	----	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	---	---	---
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	---	---	---
EP130A: Organophosphorus Pesticides (Ultra-trace)								
Bromophos-ethyl	4824-78-6	0.10	µg/L	<0.10	<0.10	---	---	---
Carbophenothion	786-19-6	0.10	µg/L	<0.10	<0.10	---	---	---



Analytical Results

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				13-DEC-2012 15:00	13-DEC-2012 15:00	---	---	---
Compound	CAS Number	LOR	Unit	EP1210463-016	EP1210463-017	---	---	---
EP130A: Organophosphorus Pesticides (Ultra-trace) - Continued								
Chlorfenvinphos (Z)	18708-87-7	0.10	µg/L	<0.10	<0.10	---	---	---
Chlorpyrifos	2921-88-2	0.05	µg/L	<0.05	<0.05	---	---	---
Chlorpyrifos-methyl	5598-13-0	0.10	µg/L	<0.10	<0.10	---	---	---
Demeton-S-methyl	919-86-8	0.10	µg/L	<0.10	<0.10	---	---	---
Diazinon	333-41-5	0.10	µg/L	<0.10	<0.10	---	---	---
Dichlorvos	62-73-7	0.10	µg/L	<0.10	<0.10	---	---	---
Dimethoate	60-51-5	0.10	µg/L	<0.10	<0.10	---	---	---
Ethion	563-12-2	0.10	µg/L	<0.10	<0.10	---	---	---
Fenamiphos	22224-92-6	0.10	µg/L	<0.10	<0.10	---	---	---
Fenthion	55-38-9	0.10	µg/L	<0.10	<0.10	---	---	---
Malathion	121-75-5	0.10	µg/L	<0.10	<0.10	---	---	---
Azinphos Methyl	86-50-0	0.10	µg/L	<0.10	<0.10	---	---	---
Monocrotophos	6923-22-4	0.10	µg/L	<0.10	<0.10	---	---	---
Parathion	56-38-2	0.10	µg/L	<0.10	<0.10	---	---	---
Parathion-methyl	298-00-0	0.10	µg/L	<0.10	<0.10	---	---	---
Pirimphos-ethyl	23505-41-1	0.10	µg/L	<0.10	<0.10	---	---	---
Prothiofos	34643-46-4	0.10	µg/L	<0.10	<0.10	---	---	---
EP131A: Organochlorine Pesticides								
Aldrin	309-00-2	0.010	µg/L	<0.010	<0.010	---	---	---
alpha-BHC	319-84-6	0.010	µg/L	<0.010	<0.010	---	---	---
beta-BHC	319-85-7	0.010	µg/L	<0.010	<0.010	---	---	---
delta-BHC	319-86-8	0.010	µg/L	<0.010	<0.010	---	---	---
4.4'-DDD	72-54-8	0.010	µg/L	<0.010	<0.010	---	---	---
4.4'-DDE	72-55-9	0.010	µg/L	<0.010	<0.010	---	---	---
4.4'-DDT	50-29-3	0.010	µg/L	<0.010	<0.010	---	---	---
^ Sum of DDD + DDE + DDT	---	0.010	µg/L	<0.010	<0.010	---	---	---
Dieldrin	60-57-1	0.010	µg/L	<0.010	<0.010	---	---	---
alpha-Endosulfan	959-98-8	0.010	µg/L	<0.010	<0.010	---	---	---
beta-Endosulfan	33213-65-9	0.010	µg/L	<0.010	<0.010	---	---	---
Endosulfan sulfate	1031-07-8	0.010	µg/L	<0.190	<0.190	---	---	---
^ Endosulfan (sum)	115-29-7	0.010	µg/L	<0.010	<0.010	---	---	---
Endrin	72-20-8	0.010	µg/L	<0.010	<0.010	---	---	---
Endrin aldehyde	7421-93-4	0.010	µg/L	<0.010	<0.010	---	---	---
Endrin ketone	53494-70-5	0.010	µg/L	<0.010	<0.010	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

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Compound	CAS Number	LOR	Unit	EP1210463-016	EP1210463-017	---	---	---
EP131A: Organochlorine Pesticides - Continued								
Heptachlor	76-44-8	0.005	µg/L	<0.005	<0.005	---	---	---
Heptachlor epoxide	1024-57-3	0.010	µg/L	<0.010	<0.010	---	---	---
Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L	<0.010	<0.010	---	---	---
gamma-BHC	58-89-9	0.010	µg/L	<0.010	<0.010	---	---	---
Methoxychlor	72-43-5	0.010	µg/L	<0.010	<0.010	---	---	---
cis-Chlordane	5103-71-9	0.010	µg/L	<0.010	<0.010	---	---	---
trans-Chlordane	5103-74-2	0.010	µg/L	<0.010	<0.010	---	---	---
^ Total Chlordane (sum)	----	0.010	µg/L	<0.010	<0.010	---	---	---
Oxychlordane	27304-13-8	0.010	µg/L	<0.010	<0.010	---	---	---
EP131B: Polychlorinated Biphenyls (as Aroclors)								
Total Polychlorinated biphenyls	----	0.10	µg/L	<0.10	<0.10	---	---	---
Aroclor 1016	12674-11-2	0.10	µg/L	<0.10	<0.10	---	---	---
Aroclor 1221	11104-28-2	0.10	µg/L	<0.10	<0.10	---	---	---
Aroclor 1232	11141-16-5	0.10	µg/L	<0.10	<0.10	---	---	---
Aroclor 1242	53469-21-9	0.10	µg/L	<0.10	<0.10	---	---	---
Aroclor 1248	12672-29-6	0.10	µg/L	<0.10	<0.10	---	---	---
Aroclor 1254	11097-69-1	0.10	µg/L	<0.10	<0.10	---	---	---
Aroclor 1260	11096-82-5	0.10	µg/L	<0.10	<0.10	---	---	---
EP201: Carbamate Pesticides by LCMS								
Oxamyl	23135-22-0	0.2	µg/L	<0.2	<0.2	---	---	---
Methomyl	16752-77-5	0.2	µg/L	<0.2	<0.2	---	---	---
3-Hydroxy Carbofuran	16655-82-6	0.2	µg/L	<0.2	<0.2	---	---	---
Aldicarb	116-06-3	0.2	µg/L	<0.2	<0.2	---	---	---
Bendiocarb	22781-23-3	0.2	µg/L	<0.2	<0.2	---	---	---
Thiodicarb	59669-26-0	0.2	µg/L	<0.2	<0.2	---	---	---
Carbofuran	1563-66-2	0.2	µg/L	<0.2	<0.2	---	---	---
Carbaryl	63-25-2	0.2	µg/L	<0.2	<0.2	---	---	---
Methiocarb	2032-65-7	0.2	µg/L	<0.2	<0.2	---	---	---
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	---	---	---
2,4-DB	94-82-6	10	µg/L	<10	<10	---	---	---
Dicamba	1918-00-9	10	µg/L	<10	<10	---	---	---
Mecoprop	93-65-2	10	µg/L	<10	<10	---	---	---



Analytical Results

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Compound	CAS Number	LOR	Unit	EP1210463-016	EP1210463-017	---	---	---
EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued								
MCPA	94-74-6	10	µg/L	<10	<10	---	---	---
2.4-DP	120-36-5	10	µg/L	<10	<10	---	---	---
2.4-D	94-75-7	10	µg/L	<10	<10	---	---	---
Triclopyr	55335-06-3	10	µg/L	<10	<10	---	---	---
2.4.5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	---	---	---
2.4.5-T	93-76-5	10	µg/L	<10	<10	---	---	---
MCPB	94-81-5	10	µg/L	<10	<10	---	---	---
Picloram	1918-02-1	10	µg/L	<10	<10	---	---	---
Clopyralid	1702-17-6	10	µg/L	<10	<10	---	---	---
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	---	---	---
2.6-D	575-90-6	10	µg/L	<10	<10	---	---	---
2.4.6-T	575-89-3	10	µg/L	<10	<10	---	---	---
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	95.9	101	---	---	---
Toluene-D8	2037-26-5	0.1	%	102	105	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	89.9	96.1	---	---	---
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	33.5	27.0	---	---	---
2-Chlorophenol-D4	93951-73-6	0.1	%	70.6	56.4	---	---	---
2.4.6-Tribromophenol	118-79-6	0.1	%	80.5	64.3	---	---	---
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	72.3	59.1	---	---	---
Anthracene-d10	1719-06-8	0.1	%	89.2	67.4	---	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	98.5	67.1	---	---	---
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	108	109	---	---	---
Toluene-D8	2037-26-5	0.1	%	98.0	108	---	---	---
4-Bromofluorobenzene	460-00-4	0.1	%	85.6	93.6	---	---	---
EP130S: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	71.2	69.3	---	---	---
EP131S: OC Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	89.6	109	---	---	---
EP131T: PCB Surrogate								



Analytical Results

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

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				EP1210463-016	EP1210463-017	----	----	----
Compound	CAS Number	LOR	Unit					
EP131T: PCB Surrogate - Continued								
Decachlorobiphenyl	2051-24-3	0.1	%	114	118	----	----	----
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	116	108	----	----	----
Anthracene-d10	1719-06-8	0.1	%	96.0	93.6	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	108	89.6	----	----	----
EP201S: Carbamate Surrogate								
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	0.1	%	65.0	74.2	----	----	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	93.0	103	----	----	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	62.3	133.9
Toluene-D8	2037-26-5	74.5	124.3
4-Bromofluorobenzene	460-00-4	63.9	118.5
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	67.2
2-Chlorophenol-D4	93951-73-6	29.4	119.5
2,4,6-Tribromophenol	118-79-6	10.0	130.8
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	33.8	130.7
Anthracene-d10	1719-06-8	42.7	126.5
4-Terphenyl-d14	1718-51-0	40.5	142.4
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	60.5	141.2
Toluene-D8	2037-26-5	73.4	126
4-Bromofluorobenzene	460-00-4	59.6	125.3
EP130S: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	32	136.4
EP131S: OC Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	136
EP131T: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	164
EP132T: Base/Neutral Extractable Surrogates			
2-Fluorobiphenyl	321-60-8	57.6	113
Anthracene-d10	1719-06-8	60.4	125
4-Terphenyl-d14	1718-51-0	58.2	128
EP201S: Carbamate Surrogate			
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	65	147
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2,4-Dichlorophenyl Acetic Acid	19719-28-9	64	140

APPENDIX 9

Chemical Degradation and Fate of Contaminants

APPENDIX 9: Chemical Degradation and Fate of Contaminants

1.1 Background

Heavy metals and metalloids, OC pesticides, PAHs, TPH, and nutrients were contaminants identified as exceeding their relevant guideline values for soils and waters. The following section outlines the fate of such contaminants in the environment.

1.2 Pesticides

Organochlorine (OC) pesticides have been commonly in use as pesticides, herbicides and fungicides since the 1950s. OC pesticides were used for both site specific treatments and for broad-scale applications in agriculture prior to being phased out in the late 1970s. Organophosphates and carbamate pesticides are still in use.

Historically the most common OC pesticides used were; DDT, dieldrin, heptachlor, chlordane and endosulfan. Many OC pesticides are known carcinogens and mutagens with the potential to bio-accumulate in the environment through ingestion by animals and absorption into plants. All OCs are persistent organic pollutants due to their low reactivity and many break down to form other toxic substances. DDT breaks down to form other very persistent pesticides such as DDE and DDD whilst heptachlor is a breakdown product and component of chlordane (ATSDR website 2010).

Most OCs have very long half lives, slow movement rates and adsorb to soils very well as detailed in Table 9-A below. The long half lives, the time taken for 50% of the original concentration to breakdown, are the primary reason for its bio-accumulation potential. The sorption coefficient describes the tendency of the pesticide to bind to soil and sediment particles and thus an indicator as to the degree of mobility (National Pesticide Information Centre Website 2010). OC use was effectively stopped by the early 1990s.

Table 9-A: Common OC Pesticides Properties

Pesticide	Movement Rating	Soil Half-Life (days)	Water Solubility (mg/L)	Sorption Coefficient (soil Koc)
DDT	Extremely Low	2000	0.0055	2,000,000
Dieldrin	Extremely Low	1000	0.2	12,000
Aldrin	Very Low	365	0.027	5000
Chlordane	Extremely Low	350	0.06	20,000
Heptachlor	Extremely Low	250	0.056	24,000
Endosulfan	Extremely Low	50	0.32	12,400

(National Pesticide Information Centre Website 2010)

1.3 Heavy Metals

Metals found above the ISQG-Low can result in harm to sediment micro-organisms or leach and enter the pore water, surface water and or groundwater system, thus becoming more mobile. The following is a basic review of the toxic effects associated with the primary metals that are usually encountered (from ANZECC (2000) and the National Framework for Ecological Risk Assessment of Contaminated Sites, Environment Australia – EA 1999).

Heavy metals can also cause phytotoxicity in plants, especially with regard to contaminant levels within the soil pore space which is where plants derive their water and nutrient needs. The bioavailability of significant metals found at the site is discussed in more detail below.

1.3.1 Arsenic

Arsenic can bio-accumulate and is phytotoxic starting at soil concentrations as low as 10 mg/kg. Significant effects on growth occur at 500 mg/kg. With respect to pore water or soil moisture concentrations, arsenic levels in excess of 0.1 mg/L can result in toxic effects. EA (1999) does not identify any studies relating to adverse soil concentrations for soil organisms.

Arsenic exhibits complex behaviour in aquatic environments including groundwater systems. The amounts present in dissolved forms are influenced by pH and redox conditions, and desorption/sorption processes (particularly in aquifers with peaty/swamp deposits with arsenic enriched iron oxy-hydroxides).

1.3.2 Copper

Copper is an essential element for plant growth and should not fall below 6 mg/kg. However soil concentrations in excess of 150 mg/kg and soil moisture concentrations in excess of 0.1 mg/L can be phytotoxic.

1.3.3 Iron

Iron is one of the most abundant elements in magmatic rocks. In general iron is present in minerals in the ferrous form (Fe^{2+}). When such minerals are exposed to water, the iron that is dissolved generally precipitates in the vicinity as sedimentary species. In reducing conditions in the presence of sulfur, the iron precipitates as ferrous polysulfides or siderite. In oxidising conditions the precipitate will contain ferric oxides or oxyhydroxides.

Iron concentrations in groundwater are a common occurrence in Perth and throughout the Swan coastal plain as evidenced by the iron staining on built structures subject to overspray from groundwater reticulation in most suburbs. Dissolved concentrations of up to 26 mg/L have been reported in the Perth region. The average concentrations in the vicinity of Stirling range between 1 and 9 mg/L (Davidson 1995).

1.3.4 Lead

Lead is strongly retained by most soils and does not result in elevated soil moisture concentrations compared to other metals, as such phytotoxic effects are noted only where soil concentrations exceed 250 mg/kg. Phytotoxicity in solution is observed at relatively high concentrations in excess of 10 mg/L. Lead accumulation is a significant health issue with regard to animals compared to vegetation. EA (1999) identifies a NOEC in soil of 2,190 mg/kg and EC₅₀ of 5,941 mg/kg for mortality of earthworms.

Lead is usually found in very low concentrations in natural waters, with background concentrations in Australia typically 0.02 to 0.13 µg/L in estuarine waters. Lead strongly adsorbs to suspended materials and complexes with Dissolved Organic Matter (DOM), generally resulting in reduced toxicity in organisms. It readily bio-accumulates in aquatic organisms and its toxicity decreases with increasing salinity. The NOEC concentration for lead in marine environments ranges from 8 µg/L (lower range for annelids) to 4,520 µg/L (upper range for molluscs).

1.3.5 Mercury

The world average background concentration of mercury in estuarine waters is 0.0007 to 0.003 µg/L. Inorganic mercury has a relatively low toxicity however it can be converted by bacteria to organomercury which is more toxic and readily bio-accumulates. Mercury strongly adsorbs to particles and so is usually bound in sediments rather than remaining in the dissolved phase. Mercury can bind to chlorine and consequently penetrate cell membranes, however, most of it will bind to DOM as organic complexes. Fish are generally more tolerant to mercury than molluscs and crustaceans, with Cu, Pb, Cd and Zn being more toxic to fish. The NOEC concentration for mercury in marine environments ranges from 0.12 µg/L (lower range for molluscs) to 1,014 µg/L (upper range for molluscs).

1.3.6 Nickel

Nickel is strongly retained by most soils and does not result in elevated soil moisture concentrations compared to other metals. Phytotoxic effects are generally not noted except where soil pH is below 6. Phytotoxicity in solution is observed at concentrations in excess of 0.13 mg/L.

1.3.7 Zinc

Zinc is an essential element for plant growth however it can be toxic to plants and animals at high soil concentrations. Soil moisture concentrations in excess of 0.4 mg/L can be phytotoxic to plants especially under acidic conditions. ANZECC (2004) details that zinc toxicity generally decreases with a reduction in pH for the range from 8 to 4. At pH above 8 trends are complex and below 4, acidity increases zinc toxicity. Toxicity also decreases with increasing hardness. ANZECC indicates that most freshwater bodies contain sufficient dissolved organic matter to remove zinc toxicity in all but very soft waters.

1.4 Polycyclic Aromatic Hydrocarbons

PAHs are released into the atmosphere, as a complex mixture of compounds during incomplete combustion of organic matter (Department of Environmental Protection 1999), such as coal, oil, petrol, wood, tobacco, charbroiled meats, garbage, or other organic materials (NPI 2010). PAHs are colourless, white or pale yellow–green solids (NPI 2010); with low solubilities in water; which is dependant on the number of aromatic rings present and arrangement in the compound. They typically enter the environment as a gas or attached to dust particles (NPI 2010). Due to there hydrophobic nature, PAHs entering the aquatic environment show a high affinity for suspended particles in the water column and as such will sorb to the particles and settle at the bottom of the water column. Concentrations in the water column are usually relatively quite low compared to the bottom sediments (Ministry of Environment – British Columbia 2010).

Several PAHs are classified as probably carcinogens and possibly carcinogens in humans and can enter the body via inhalation, ingestion or dermal contact with heavy oils (NPI 2010). Benzo(α)pyrene and pyrene are the most important carcinogenic PAHS and are components of combustion processes, coke oven and foundry emissions (Department of Environmental Protection 1999). They are moderately to high acute (short term) toxicity to aquatic life and birds and moderate to high chronic (long-term) toxicity to aquatic life and birds. PAHs are moderately persistent in the environment and can bio-accumulate (NPI 2010).

The transport and partitioning of PAHs in the environment is determined to a large extent by physico-chemical properties such water solubility, vapour pressure, octanol-water partition coefficient (K_{ow}), Henry's law constant and organic carbon partition coefficient (K_{oc}). The Henry's law constant is the partition coefficient that expresses the ratio of the chemical's concentrations in air and water at equilibrium and is used as an indicator of a chemical's potential to volatilise. The K_{oc} indicates the chemical's potential to bind to organic carbon in soil and sediment. The K_{ow} indicates the potential of an organic chemical to move from water into a lipid (ATSDR 1995).

As such, as indicated by Table 9-B, the low molecular weight PAHs with their high water solubility, low sorption coefficients, low vapour pressures and high Henry's law constant are more easily transported through the environment than the heavier PAHs. As an example, Hattamer-Frey and Travis (1991) the low solubility, low vapour pressure and high K_{ow} of benzo(α)pyrene result in its partitioning mainly between soil (82%) and sediment (17%) with \approx 1% partitioning into water and $<$ 1% into air, suspended sediment and biota. PAH have the potential to volatilise from soil, with the loss mechanism being greater for low molecular weight PAH than the heavy PAHs (ATSDR 1995).

Based upon the above example benzo(α)anthracene, chrysene, fluoranthene and pyrene would have similar portioning to benzo(α)pyrene as they have low solubilities, high K_{oc} and K_{ow} and low vapour pressures and Henry's Law constant. Anthracene and

fluorantene would potentially partition predominately to the air, as vapour, and into water due to their higher solubilities and higher vapour pressures and Henry's Law constant, compared to the heavy molecular weight PAHs.

Table 9-B: Common PAH Properties

PAH	Water Solubility (mg/L)	Sorption Coefficient (Soil Log K_{oc})	Partition Coefficient (Log K_{ow})	Vapour pressure (kPa at 25 °C)	Henry Law Constant (kPa at 25 °C)
Anthracene ¹	0.076	4.15	4.45	2.3×10^{-6}	100
Benzo(α)anthracene ²	0.01	5.30	5.61	2.9×10^{-9}	5.6
Benzo(α)pyrene ²	0.0023	6.74	6.06	7.5×10^{-10}	2.8
Chrysene ²	0.028	5.30	5.16	8.9×10^{-8}	5.9
Fluoranthene ²	0.26	4.58	4.90	6.7×10^{-7}	37
Fluorene ¹	1.98	3.86	4.18	4.3×10^{-5}	563
Pyrene ²	0.077	4.58	4.88	3.3×10^{-7}	64

Notes: Taken from ATSDR 1995. 1: Low molecular weight PAH, 2: High molecular weight PAH.

PAHs can be broken down via photo-oxidation or biodegradation by microorganisms (Ministry of Environment – British Columbia 2010). Low molecular weight (LMW) PAHs; e.g. naphthalene, anthracene and fluorene; degrade at higher rates than high molecular weight (HMW) PAHs; e.g. benzo(α)pyrene, pyrene and fluoranthene; probably due to their weaker adsorption and greater bioavailability. Half lives for LMW are typically 100–200 days, with HMW half lives typically 300–500 days (USEPA 2010).

Therefore based upon the above physical properties, the majority of PAHs encountered onsite, high molecular weight PAHs, pose minimal risk of vapour generation and/or leaching from the soil profile and thus mobilisation and transport through the environment.

1.5 Total Petroleum Hydrocarbons (TPH)

Hydrocarbons cover a broad range of compounds and are normally measured as TPH, being associated with fuels and oil products, animal fats, oils and greases. TPH concentrations (<C15) is of primary concern as it is derived from petrol and diesel considered to be the most commonly encountered sources of hydrocarbons. The monocyclic aromatics (MAH); benzene, toluene, ethylbenzene, xylenes and naphthalene (PAH) are considered the primary target compounds due to significant water solubility and mobility in the environment, however none were detected on site. Higher molecular weight hydrocarbons are more stable and less soluble in water and more likely to sorb to soil (especially where there is a high organic content).

1.6 Nutrients

Nitrogen and phosphorus are essential to aquatic organisms, however an excess can cause nuisance growth of algae and cyanobacteria. The most common forms of nitrogen which are available for plant growth include nitrate, nitrite and ammonia (NH_4^+). Nitrate is the most commonly available and NH_4^+ is the most readily utilised by plants. Inorganic orthophosphate (PO_4) is the phosphorus form that can be most readily assimilated.

Phosphorus in water can be both dissolved or bound to organic compounds and suspended particles. A general rule is that nitrogen is the nutrient that limits plant growth in marine ecosystems and sometimes in estuaries, while phosphorus generally limits plant growth in freshwaters. This means nitrogen and phosphorus limitation can potentially interchange with winter flushing of freshwater (phosphorus limiting) and more saline estuarine water in summer (nitrogen limiting), in a tidal environment such as the Swan River.

1.6.1 Asbestos

Asbestos was used in many products up until 1987. The most common material it is found in is fibro-cement, which can contain up to 15% by weight as asbestos. Asbestos can be found in building waste, cement pipes, or as an insulation material (known as lagging). Asbestos becomes a potential health issue only when free fibres are generated and are airborne and thus can be inhaled. The human health effects associated with asbestos fibre exposure are well documented and include lung cancers, asbestosis and mesothelioma (rarer). Oral exposure is considered not to be a hazard.

Asbestos cement products in good condition do not represent a significant risk (enHealth 2005), only when it has been abraded or damaged will fibres be potentially released.

Weathering of asbestos cement materials will occur when exposed to the elements, sheets will become brittle and more susceptible to erosion, moss and lichen growth can also soften the cement surface.

The weathering of asbestos cement below ground is generally not considered in any detail; however the cement binding is subject to chemical degradation due to sulfate attack from external sources or from inside the cement matrix itself. Elevated levels of sulfate in the soil can replace the bonds that hold cement together thus leading to in situ chemical erosion. Therefore ultimately over a long enough period of time the cement binding will erode thus potentially creating fibre bundles.

Those soils and sediments which are acidic or contain sulfate (i.e. gypsum-based and swampy soils) may accelerate the chemical weathering of bonded asbestos cement products below ground. Where asbestos is below ground it will not present a potential health risk unless it is disturbed.