September 2016

Detailed Environmental Site Assessment, Central Precinct - Minto Warehouse and Logistics Hub, 5 and 9 Culverston Road, Minto, NSW

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REPORT

Report Number. 1648232-006-R-Rev0

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1.0 INTRODUCTION

Golder Associates (Golder) was engaged by Tactical Group (Tactical) on behalf of Qube to prepare a Detailed Phase II environmental site assessment (ESA) to support the development application proposed by Qube.

This report relates to the proposed development of 5 and 9 Culverston Road, Minto (the Site), being legally described as Lot 3 in DP 817793 and Lot 400 in DP 875711, for the purpose of a Warehouse and Logistics Hub (the Proposal). The State Significant Development (SSD) application seeks approval for the construction and use of a Warehouse and Logistics Hub (the Proposal) that will play a vital role in the storage and distribution of goods for businesses and that will create employment opportunities. The proposal will involve:

- Bulk earthworks across the site to provide four (4) building pads;
- Provision of infrastructure and services;
- Four (4) Warehouse facilities;
- Ancillary hardstand areas, car parking and external storage hardstand area.

In total, the development will be carried out over three (3) stages as follows;

- Stage 1 – Warehouse 1A;
- Stage 2 – Warehouse 1B + 1C; and
- Stage 3 – Warehouse 1D

The site is currently used for industrial purposes comprising the storage and processing of motor vehicles and associated activity. The proposed operation of the site will be for the purpose of storage and distribution of Fast Moving Consumer Goods.

The Proposal seeks to establish an innovative operation that will benefit businesses that operate on a local and national scale.

The site is located within the Campbelltown Local Government Area (LGA) and is identified within the 4(b) Industry B zone pursuant to the Campbelltown (Urban Area) Local Environmental Plan 2002 (CLEP 2002). The proposed development is permissible with consent on the subject site. Under the provisions of Draft Campbelltown Local Environmental Plan 2014 (CLEP 2014) the site is zoned IN1 General Industrial Zone. The Proposal is permissible with development consent in the 4(b) Industry B Zone and the draft CLEP2014 IN1 General Industrial Zone and will be contextually appropriate.

No previous information on potential contamination risks had been identified, and the SSD application will need to be supported with an appropriate contamination assessment. Therefore the objective of this investigation was to consider and assess:

- The sources of potential contamination on the Site;
- The extent of contamination currently present on the Site;
- The potential environmental and human health risks of contamination on the Site; and
- The need to undertake further investigation and / or remediation to address contamination which may present an unacceptable risk during the future use of the Site.

To achieve the investigation objectives a combined Phase I and limited Phase II ESA was completed in general accordance with the NSW Environmental Protection Authority (EPA) endorsed Guideline for Consultants Reporting on Contaminated Sites (OEH, 2011). The Phase II investigations were limited as Golder access for intrusive investigations was not permitted in the central portion of Lot 400 DP875711.

Subsequent to the Phase I and limited Phase II ESA, a detailed investigation of the central portion of Lot 400 DP87571 was warranted, and is presented in this report.

1.1 Scope of Works

The detailed ESA scope of works included:

- Completion of a detailed Phase II intrusive investigation comprising soil and groundwater sampling in the central precinct of the Site. The scope of the investigations included:
  - Collection and analysis of soil samples collected from six on-site boreholes (SB1-6) and from the construction of five monitoring wells (MW1-5).
  - Installation of groundwater wells at five locations (MW1-5) and collection of groundwater samples.
  - Comparison of the laboratory analytical results against selected applicable NSW EPA endorsed guidelines to assess the suitability of site for the proposed development.

The Secretary's Environmental Assessment Requirements (SEARs) was issued for the Proposed Warehouse and Logistics Hub on the 10th March 2016. The SEARs requirements addressed in this report are summarised in Table 1 below.

Table 1: Secretary's Environmental Assessment Requirements (SEARs)

Requirement Category	Location (in SEARS Document)	Requirement	Section in report where requirement has been addressed	Comments
SEARs General Requirements	SEARs Requirements p.1	"Clauses 6 and 7 of Schedule 2 of the Environmental Planning and Assessment Regulation 2000."	Whole Report	
SEARs General Requirements (Key Issues)	SEARs Requirements p.2	"Soils and Water - including…An assessment of potential impacts of surface and groundwater impacts associated with the development."	Section 3.1 - Identified Potential Contamination Issues.	Only groundwater impacts have been assessed as there were no areas with surface water to investigate.
DPI Water – Groundwater Assessment	Attachment A, p. 7	"An assessment of the potential for groundwater contamination (considering both the impacts of the proposal on groundwater contamination and the impacts of contamination on the proposal)."	3.1.2 - Groundwater Investigation, 3.3.4 - Groundwater Analytical Results, 3.5 Conceptual Site Model	

Technical and Policy Guidelines - Soils and Water (Groundwater)	Attachment 1 , p.5	"National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia" (ARMCANZ/ANZECC)	3.2.2 - Groundwater Investigation Levels	Groundwater Investigation Levels (GILs) used in this report were based on these guidelines.
NSW EPA – (Contaminated Land)	Attachment A, p. 4	"State Environmental Planning Policy (SEPP) 55…states that as a part of the development process the following key considerations should be addressed: • Whether the land is contaminated • If the land is contaminated whether it is suitable in its contaminated state (or will be suitable after remediation) for all the purposes to which the land will be used. In cases where land is potentially contaminated, the investigation and any remediation and validation work is to be carried out in accordance with the guidelines made or approved under Section 105 of the *Contaminated Land Management Act 1997* and be in accordance with the requirements and procedures in the following: • *Contaminated Land Management Act 1997*	–Whole Report Conceptual Site Model, Section 3.3 - Summary of Investigation Results	

		• *Contaminated Land Management Act 2013* • *State Environmental Planning Policy*		
NSW Office of Environment and Heritage (Water and Soils)	Attachment A, page 2	"The EIS must map the following features relevant to water and soils including: (a) Acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Planning Map)…. (c) Groundwater"	Section 2.4.2.3 – Acid Sulfate Soils, Section 3.1.2 - Groundwater Investigation, Section 3.3.4 - Groundwater Analytical Results	

2.0 SITE DESCRIPTION

The subject site is identified as 5 and 9 Culverston Road, Minto, being legally described as Lot 3 in DP 817793 and Lot 400 in DP 875711. The entire site exhibits an area of approximately 29.63 ha.

The Site has been historically developed for industry and is currently used for a vehicle storage and processing facility.

Existing attributes of the Site are noted as follows:

- Existing development on the Site comprises hardstand, shade structures and a warehouse building.
- The Site is generally clear of vegetation, with the exception of planting adjacent to the Site boundaries.
- Access is obtained via Culverston Road from the round-about intersection of Culverston Road and Airds Road.
- The site's eastern boundary corresponds with a drainage corridor and the Main Southern Railway line while the site's western boundary corresponds with the Bow Bowing Canal. The site's northern boundary also corresponds with a drainage channel.

Figures 1 and 2 below provide an overview of the site layout (as existing) and the surrounding land uses.

Figure 1: Subject Site (SIX Maps, 2016)

Figure 2: Subject Site (SIX Maps, 2016)

The site is located within the Campbelltown LGA to the south-west of the Sydney metropolitan area.

The site is serviced by major transport infrastructure providing local and regional connectivity including the Hume Motorway with access facilitated in close proximity of the site. Other major road infrastructure in the general vicinity of the site includes Narellan Road (A9), Camden Bypass, Camden Valley Way and the M7.

Located approximately 50 km from the Sydney CBD and 40 km from Sydney Airport, the site affords access to vital infrastructure which reinforces its suitability for warehousing and logistics purposes.

The regional context of the site is shown in **Figure 3**.

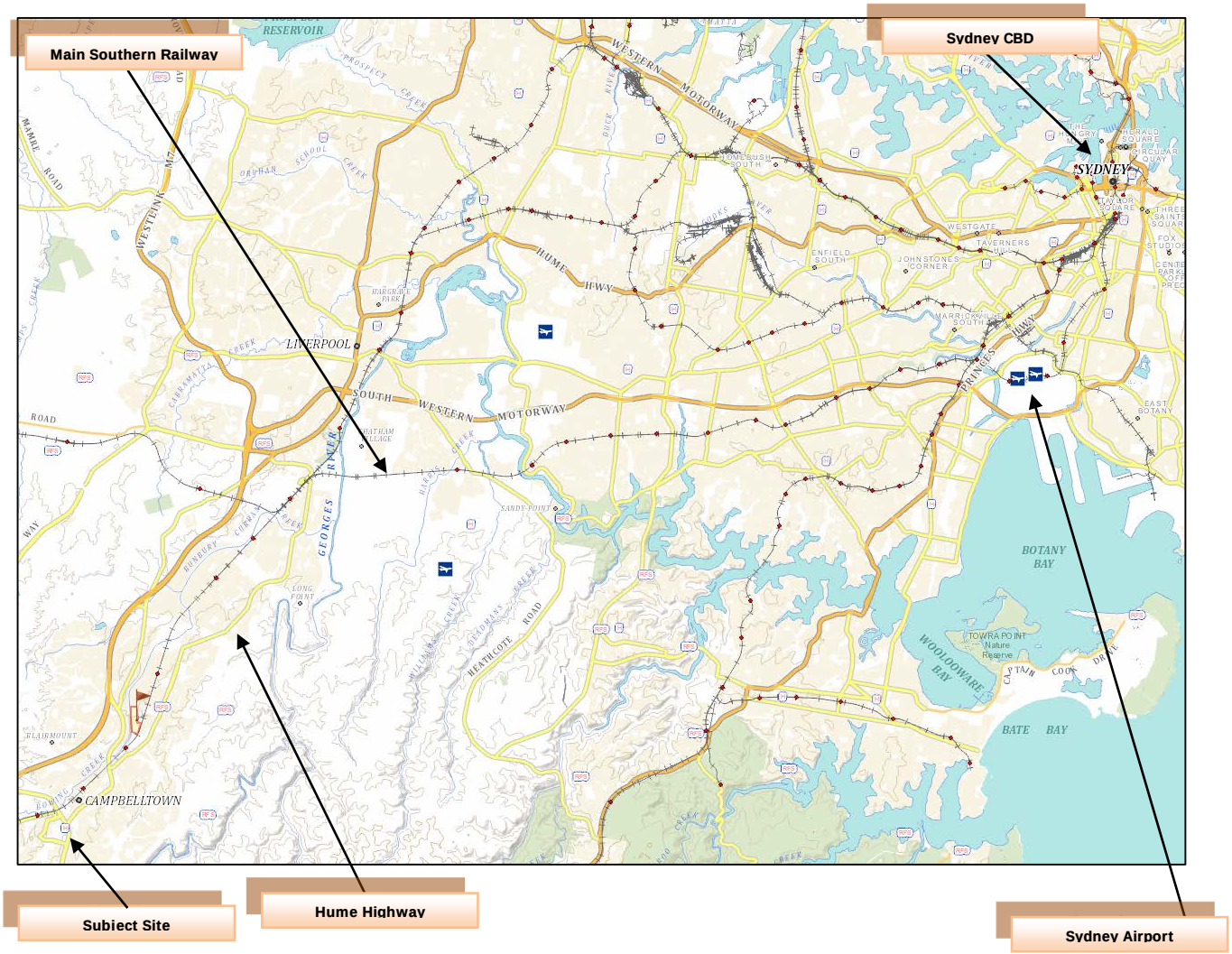

Figure 3: Site Context (Google Maps, 2016)

2.1 Site Location and Setting

Table 2 summarises the identification, location and setting of the site. A site plan showing the location is attached as **Figure 1**.

Table 2: Site Identification, Location and Setting

Item	Details
Street Address	5 & 9 Culverston Rd, Minto
Approximate Site Area	Approximately 300,000 m^2 (30 ha)
Current Land Use	Automotive storage and logistics facility
Legal Property Description	Lot 400 DP 875711; Lot 3 DP 817793
Approximate Geographic Co-ordinates	34º02'35.28"S; 150º50'2.64"E
Local Government Area and Land Use Zoning	Campbelltown City Council LGA Lot 400 DP 875711: IN1 – General Industrial Lot 3 DP 589915: SP2 - Infrastructure

2.2 Current Site Description

The site currently operates as an automotive storage facility, which involves the storage and logistics of roughly 10,000 vehicles, with approximately 90% of the facility used for vehicle storage. There are six industrial buildings on site, including one large industrial building (for administrative and vehicle-related activities) called the warehouse, which includes the 'build shed.' There is netting/shade cloth over a large portion of the Site.

A site plan is attached as **Figure 2**.

2.2.1 Surrounding Land Use

The site is located in an area with mainly commercial/industrial development in the immediate vicinity. Main Southern Railway is located to the east of the Site. The surrounding land uses noted at the time of the Phase 1 ESA site inspection are identified in **Table 3**.

Table 3: Surrounding Land Use

Direction	Description
North	Airds Rd then industrial properties
South	Rose Payten Drive then industrial properties and Campbelltown Sports Stadium
East	Main Southern Railway then industrial properties, then residential development
West	Airds Rd then industrial properties then the Hume Motorway (M5)

The site exhibits three (3) street frontages being Airds Road to the north and west and Rose Payten Drive to the south which is elevated in respect of the site. The site is also transected by Culverston Road running north-west through the northern and central portions of the site. To the east the site adjoins a drainage corridor and the Main Southern Railway line.

The subject site is surrounded by similar industrial and warehouse development. The site is also in reasonable proximity of Pembroke Park, the Campbelltown Sports Stadium and other recreational infrastructure. The nearest residential development is located approximately 300 m to the west of the site and comprises low-density suburbs.

2.3 Environmental Setting

2.3.1 Topography and Drainage

The site has relatively flat topography, with an elevation of 46-53 metres Australian Height Datum (m AHD) (Google Earth, 2015). The elevation gradually declines to the north. The site is surrounded by steep ditches and mounds to the east, south and west of the site. These ditches are for security reasons to prevent car theft.

There are surface water drains that are located near the boundary of the Site and stormwater channels that surround the Site. Drainage of the Site is connected to the municipal stormwater system and drains into the adjacent channels and into the Bow Bowing River, which flows north.

2.3.2 Geology and Hydrogeology

2.3.2.1 Fill

Based on aerial photos, there was a creek that historically ran through the Site and there is visual evidence that there was a creek realignment that took place. The former creek and creek bed would have been filled with imported materials and the site flattened for commercial use. This appears to have occurred between 1970 - 1975. As such the Site is likely underlain by fill and topsoil of variable depth. More recently, fill appears to have been imported under controlled conditions to create boundary buffers for security.

2.3.2.2 Soils and Landscapes

Based on review of on-line mapping on the eSPADE web site residual soil at the Site would be part of the Blacktown and South Creek landscape. Soils of the Blacktown landscape are typically shallow to moderately deep *Red* and *Brown Podzolic Soils* on crests, upper slopes and well-drained areas. Deeper *Yellow Podzolic Soils* and *Soloths* are present on lower slopes and in areas of poor drainage. Soils at the Site would be expected to have moderately reactive and highly plastic subsoils and exhibit low soil fertility and poor drainage (Chapman et al 1989). This is most likely to have been overlain by fill materials from an unknown source.

No soil landscape report for South Creek is available.

2.3.2.3 Acid Sulfate Soils

Acid sulfate soil (ASS) planning sheets associated with the CLEP 2015 were not found in order to identify ASS in the council area. ASS planning maps were originally prepared by the NSW Department of Land and Water Conservation to indicate the potential presence of ASS, rather than the severity of ASS at a particular location. The planning maps identify five classes of ASS (Class 1 to Class 5) and identify types of works likely to present an environmental risk for each class of land (ASSMAC, 1998). If the types of work are proposed in an area identified with potential ASS, further investigations are required to confirm the presence of ASS, and if present, the potential risk to the environment. Further investigations and development consent may be required for work on Class 5 land within 500 metres of adjacent Class 1, 2, 3 or 4 land that is below 5 metres Australian Height Datum and by which the water table is likely to be lowered below 1 metre Australian Height Datum on adjacent Class 1, 2, 3 or 4 land.

On-line ASS mapping hosted by the Australian Soil Resource Information System (ASRIS) was reviewed through a Google Earth interface. The ASRIS mapping is based on existing data sets which have been converted to a national classification system (ASRIS, 2011). ASRIS shows the majority of the site as located in an area of “Low probability” of ASS.

2.3.2.4 Geology

A review of the NSWGeologyPlus (Geological Survey of NSW, LPI NSW, METI & NASA) geological map on the NSW Resource and Energy website indicates that the site is located in an area mapped with Quaternary alluvial deposits as the underlying formation. These sediments comprise recent mud, silt, sand and gravel deposited by river (alluvial) systems.

2.3.2.5 Hydrogeology

A search of on-line records held by the NSW Department of Primary Industry Office of Water was performed on 4th February 2016. The search indicated there were three licensed groundwater bores located within 1000 m of the site. These groundwater bores were all property of Integral Energy, privately owned and were intended for monitoring purposes. The results of the search are summarised in **Table 4**.

From the groundwater bores in the area, standing water level is expected to occur between 1.4 m and 6.3 m below ground level (mbgl) and these levels may be influenced by rain and seasonal fluctuations. Water bearing zones within the licenced bores ranged from 11.5m to 13.1m bgl.

Table 4: Summary of Surrounding Licenced Groundwater Bore Information

Bore	Approximate distance and direction from site	Depth (m)	Standing water level (m bgl)	Comments
GW110577	~700m E	15	6.3	WBZ 14.0 to 15.0m; Geology logged as Fill (Clayey Gravel) 0.2-0.5m, Fill (Gravelly Clay 0.5-2.0m and Sandstone 2.0-15.0m
GW110576	~700m E	13.1	1.4	WBZ 13.0 to 13.1m; Geology logged as Fill (Sandy Silt) 0.3-1.0, Sandy Clay 1.0-1.8m and then Sandstone 1.8-13.1m
GW110575	~700m E	14.2	4.3	WBZ 11.5 to 14.2m (2.7m thick); Geology logged as Fill (Sandy Clay) 0.30-2.0m, Gravelly Sand 2-2.5m and then Sandstone 2.5-14.20m

Notes
-: no information provided
m: metres
mbgl: metres below ground level
WBZ: water bearing zone
mg/L: milligrams per litre

2.3.2.6 Climate

Meteorological conditions at the site have been inferred from long term records for the Campbelltown (Mount Annan) meteorological station, which is located approximately 5.5 km to the south west of the site. According to historical records obtained by Weatherzone.com.au, the mean annual rainfall is in the order of 803.6 mm, the wettest month being February and the driest month being August. The mean number of days in a year

with rain is 102 days. The mean maximum temperature is 23.9 °C and mean minimum temperature 10.9°C. The warmest and coldest months are January and July, respectively.

3.0 PREVIOUS ENVIRONMENTAL ASSESSMENT REPORTS

One environmental investigation has been previously carried out at the site. This report is summarised in the Table 5 below.

Table 5: Previous Environmental Assessment Reports

Report Title	Summary
Golder Associates April 2016 (Golder, 2016a) Phase I and Limited Phase II Environmental Site Assessment – Minto Warehouse and Logistics Hub, 5 and 9 Culverston Rd, Minto, NSW	This report involved a Phase 1 and Phase 2 investigation. The purpose of the Phase 1 part of the ESA was to provide an interpretation of the site history assessment as they relate to potential environmental contamination. The Phase 2 component was a limited intrusive investigation. Soil samples were collected from twelve on-site locations, includes eight boreholes (GA-BH01-GA-BH08) and four hand auger locations (GA-HA01-04). Four of these boreholes were converted into monitoring wells (GA-HA01-04) and groundwater samples were collected and analysed. The assessment indicated that the concentrations of reported analytes in both soil and groundwater were generally less than guidelines for the protection of human health, and ecological receptors within the nearby fresh water receiving environment. An exception was the elevated concentrations of cadmium and zinc. Cadmium was not reported as an exceedance at the downgradient site boundary, hence the risk to fresh water receptors was considered to be low. The zinc exceedances were reported in groundwater entering site from both the south and eastern boundary, and therefore were likely indicative of natural background conditions. At the time of the investigations Golder were not permitted undertake intrusive investigations in the central portion of the Site.

3.1 Identified Potential Contaminated Issues

Based on the findings of the previous Phase 1 ESA, Golder established that key potential sources of contamination for the site are generally related to historical filling and ongoing use of the site for vehicle storage and logistics. Table 6 presents the key contamination issues and contaminants identified for the site and contaminants of potential concern (COPC). It also presents potential contaminants of concern that may be associated with these activities.

The following qualitative risk framework was applied:

- **Low**: the potentially contaminating activities and related contaminants of concern likely pose no risk, or have a low potential for environmental impact. Any impact is likely confined to the area of operations. The impact is unlikely to pose a compliance risk from regulators.
- **Medium**: the potentially contaminating activities and related contaminants of concern likely have potential for moderate environmental impact. Any impact is likely contained within the area of operations. There is potential for regulator interest.
- **High:** the potentially contaminating activities and related contaminants of concern could pose significant environmental impact. There is potential for impacts outside the area of operations or to environmental receptors. There is potential for a breach of regulation or standards

Table 6: Potential Sources and Contaminants of Concern

Potential Contamination Source	Description	Potential Contaminants of Concern	Potential for Contamination
Onsite			
Vehicle storage and miscellaneous vehicle activities	The Site has been operating as an industrial property and transport facility since at least 2005. The site stores approximately 10,000 vehicles. Vehicle related activities include painting and car washing.	TRH, BTEX, metals, solvents, acids/alkalis, resins, chlorinated hydrocarbons (VOCs / SVOCs), antifreeze, detergents (phosphates, ammonia, alcohols, esters)	Medium
Storage and use of chemicals in the warehouse	Small volume oils, paints, solvent and thinners stored in drums and steel cabinet.	TRH, solvents, phenols, metals, alkalis, acids	Medium
Fuel storage	ASTs containing ULP, diesel and kerosene.	TRH, BTEX, PAH, Phenols, Lead	Medium
Imported fill	Fill has most likely been imported from unknown sources.	TRH, PAH, metals, OCPs, OPPs, PCBs and Asbestos	Medium
Agricultural activities	Formerly owned by dairyman in 1930s	OCP & OPP, nutrients.	Low
Off-site			
Bitumen mixing activities (Fulton Hogan)	This facility is to the immediate north of the Site and involves the use and storage of hydrocarbons and chemicals and continual heating. Although this facility is in close proximity, it is down-gradient of the Site.	TRH, PAHs, solvents (VOCs / SVOCs)	Low
Tyre manufacturing and chemical storage activities (Toyo Tyre and Rubber)	Toyo Tyre and Rubber is located 50 m W of the Site. The industrial building has existed since the 1970s (previous uses are not known).	Rubber, carbon black, metals, and solvents	Low

Recycling and waste storage activities	Minto Recycling Facility and Environmental Treatment Solutions (Waste Storage facility) are positioned 200 m N of Site.	TRH, PAH, MAH, OCP, and PCB, metals and solvents (Minto Recycling), hazardous/restricted waste, asbestos, metals (Environmental Treatment Solutions).	Low
Food/dairy processing activities (Streets Ice Cream Factory)	The Streets Ice Cream factory is located 50 m E of the Site	Nutrients, biological oxygen demand, total suspended solids, oil and grease	Low
Industrial activities	The surrounding area has been an industrial area since the 1990s.	Metals, TRH, MAH, PAH, , solvents, phosphates and sulfates	Low

Notes
TRH – Total recoverable hydrocarbons
BTEXN – Benzene, toluene, ethylbenzene, xylene, naphthalene
PAH – Polycyclic aromatic hydrocarbons
OCP – Organochlorine pesticides
OPP – Organophosphate pesticides
PCB – Polychlorinated biphenyls
Metals - As, Cd, Cr, Cu, Pb, Ni, Zn, Hg
VOC – Volatile Organic Compounds
SVOC – Semi-Volatile Organic Compounds
MAH – Monocyclic Aromatic Hydrocarbons

In summary:

- There is medium to high potential for soil and groundwater contamination due to historical activities within the site, particularly associated with the fuel storage facilities and historic filling of the Site with materials from an unknown source; and
- There is a low potential for impacts to soil and groundwater due to historical activities off-site.

The risk ranking is intended to indicate the potential need to further assess soil and/or groundwater in the vicinity of potential contamination, taking into consideration the sources, pathways and receptors at the Site. It should be noted that the ranking is not intended to infer severity or extent of impact. For example, it may be that the potential soil impact (if any) is relatively localised and minor in nature.

4.0 INVESTIGATION METHODOLOGY

4.1.1 Borehole Drilling, Monitoring Well Installation and Hand Auger Drilling

Four soil investigation bores (SB1-4) were advanced inside the warehouse, using concrete coring followed by hand augering. The bores were hand-augered up to a maximum depth of 2.0mbgl or until refusal. The bores were backfilled with cuttings and then topped with concrete upon completion of the investigation.

Two additional soil bore locations (SB5-6) were advanced in the vicinity of the fuel storage and car wash bays. These bores were drilled by solid stem auger drilling with a v-bit (ADV) method, these bores ranged from maximum depths of 2.10-2.45mbgl.

Soil samples, from under the asphalt/concrete, were collected from the boreholes for field screening and analysis at the near surface and at every half-meter thereafter. Soil samples were screened in the field using a photo ionisation detector (PID) to assess for the presence of ionisable VOCs within the soil and visual and olfactory methods were used to log the materials encountered in the borehole.

Five additional locations soil bores were advanced and converted to groundwater monitoring wells (MW1-5) were investigated using DTC and then ADV methods. The relative location and monitoring purpose of the wells is as follows:

- ***MW1:*** located onsite, south of the main warehouse. This well is interpreted to be hydraulically up-gradient of the warehouse, which reflect any potential contamination sources that could be entering from sources south of the warehouse.
- ***MW2:*** located onsite, close to northeast corner of the warehouse and near the entrance of the facility. This well is interpreted to be a hydraulically downgradient of the warehouse.
- ***MW3:*** located onsite, close to northwest corner of the warehouse and hydraulically downgradient of the warehouse and hydraulically up-gradient of the fuel storage and car wash bays. Its water quality should highlight any groundwater contamination from the warehouse activities (such as the storage and use of paints and solvents).
- ***MW4:*** located onsite, this well is interpreted to be directly downgradient of the fuel storage area (north of the main warehouse). Its water quality should represent groundwater affected by the fuel storage area.
- ***MW5:*** located onsite, this well is interpreted to be directly downgradient of the car wash bays (north of the main warehouse). Its water quality should represent groundwater affected by the car wash bays.

Details of the drilling, monitoring well installation and hand auger drilling methodology are summarised in Table 7. Locations are presented on Figure 3 (Appendix A) and the soil borehole and monitoring well installation logs are presented in Appendix J.

Table 7: Field Activities - Drilling

Activity	Details
Date of Field Works	6th to 9th June 2016
Concrete coring	Concrete coring was required at six locations (SB1-6).
Drilling	Drilling locations were cleared by a qualified service locator prior to mechanic drilling. ADV (Auger with V bit) was used at the monitoring well locations where soil samples were also collected (MW1-5) with a diatube concrete corer (DTC) used to remove the initial ground covering. Hand auger drilling was used at six locations (SB1-6).
Bores Drilled and Target Depths	A total of eleven soil bores were drilled to depths ranging from 0.6-2.1 mbgl. Drilling was terminated when the target depth was reached or on refusal (i.e. SB4). Five of the eleven soil boreholes were converted into groundwater monitoring well locations, terminating at depths ranging from 6.1 mbgl to 7.3 mbgl.
Soil Sampling	During the drilling and well installation process, soil samples were collected from each borehole at the following indicative depth intervals: surface to 0.2 mbgl (near surface sample), 0.5 mbgl, 1.0 mbgl and at every 1-2 metres thereafter until natural soil was reached or until refusal.
Soil Screening	Collected soil samples were screened in the field using a PID for the potential presence of VOCs.
Groundwater Monitoring Well Construction	The five wells were constructed with 50 millimetre (mm), Class 18 Unplasticised Poly Vinyl Chloride (uPVC) threaded screen and casing. Well caps and plugs were fitted to bottom and top of wells, respectively. Screened sections were backfilled with sand and topped with a seal (above top of screen) of bentonite and soil cuttings of at least 0.5 m thickness. The remaining volume of the well annulus was backfilled using cement slurry.
Groundwater Monitoring Well Development	Following installation of groundwater monitoring wells, each well was developed by removing a minimum of three bore volumes of groundwater or until the well was purged dry. Well development was conducted using footvalve techniques. Purged groundwater was stored on-site in appropriately labelled 205 Litre (L) drums and are currently secured onsite.
Decontamination Procedure	The split spoon was decontaminated between samples with Decon 90 solution and rinsed with potable water. Augers were washed in between sample locations.
Sample Preservation and Handling	Collected soil samples were placed in soil jars prepared and supplied by the laboratory and placed on ice, in eskies whilst on-site and in transit to the laboratory, under chain of custody (CoC) procedure.
Disposal of Soil Cuttings	Soil cuttings were blended with bentonite and used to backfill the monitoring well casing. Additional cuttings were disposed of in an approved location by the drillers or on site.

Soil samples from each drilling location were submitted to SGS Environmental (SGS) for analysis of total recoverable hydrocarbons (TRH), benzene, toluene, ethyl benzene and xylene (BTEX compounds), metals, VOCs, semi-volatile organic compounds (SVOCs), organochlorine pesticides (OCPs), organophosphorus pesticides (OPPs), polycyclic biphenyls (PCBs) and asbestos.

Quality assessment and quality control (QA/QC) samples, including one (1) field duplicate and one (1) field triplicate sample, were collected for laboratory analysis. The field triplicate sample was submitted to ALS Laboratories Pty Ltd (ALS) for analysis. Both of the laboratories are accredited by National Association of Testing Authorities (NATA).

In addition, four (4) rinsate samples and four (4) field blank samples (i.e. one rinsate and field blank sample per day) were prepared to assess the field decontamination procedures.

4.1.2 Groundwater Investigation

One groundwater monitoring event (GME) was undertaken during the assessment. Details of groundwater investigation methodology are summarised in the table below**.** Locations of the monitoring wells are presented on Figure 3 (Appendix A).

Table 8: Field Activities – Groundwater Sampling

Activity	Details
Date of Field Works	21st June 2016
Well Survey	Newly installed groundwater monitoring wells were surveyed during well construction to obtain groundwater elevations in metres Australian Height Datum (mAHD).
Well Gauging	Standing water levels (SWLs) were measured prior to purging and sampling using an interface probe. Groundwater gauging data are presented in Table 3 (APPENDIX B).
Well Purging	Each of the groundwater monitoring wells was purged by removing sufficient volumes of water until field parameters had stabilised. Visual/olfactory observations were also recorded during purging. Physio-chemical parameters recorded included pH, electrical conductively (EC), redox potential, dissolved oxygen (DO) and temperature were measured ex-situ using a calibrated water quality meter. Field parameters are presented in Table 4 (APPENDIX B).
Groundwater Sampling	Groundwater samples were collected from the groundwater monitoring wells using a peristaltic pump with dedicated HDPE tubing.
Decontamination Procedure	Decontamination was not required for most sampling equipment as it was dedicated for each individual well. The interface probe was washed in Decon 90 solution and rinsed with potable water between measurements.
Sample Preservation and Handling	Groundwater samples were placed in containers prepared and supplied by the laboratory and placed in eskies containing ice whilst on-site and in transit to the laboratory, under Golder's chain of custody procedure. In addition, groundwater samples for metals analysis were field filtered using sterile disposable 0.45 micrometre (µm) Stericups and stored in the laboratory supplied bottles preserved with nitric acid.
Disposal of Water Waste	Purged groundwater was disposed of on-site into a wastewater container.

Collected groundwater samples from the newly installed groundwater wells were submitted to SGS for the analysis of TPH, BTEX, VOCs and SVOCs and 8 metals (arsenic, cadmium, chromium, copper, lead, nickel and zinc). QA/QC samples, including one (1) field duplicate samples and one (1) field triplicate samples (submitted to ALS for analysis). In addition, one (1) rinsate sample and one (1) field blank sample (i.e. one rinsate and field blank sample per day) were prepared to assess the field decontamination procedures. The groundwater purge records can be seen in APPENDIX D and calibration certificates can be seen in APPENDIX F

4.2 Adopted Site Assessment Guidelines

4.2.1 Soil Investigation Levels

4.2.1.1 Health Screening Levels (HSLs)

The Assessment of Site Contamination National Environment Protection Measures (ASC NEPM) (NEPC, 2013) incorporates the Health Screening Levels (HSLs) for petroleum hydrocarbons in soil, soil vapour and groundwater based on levels derived by the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE) (CRC CARE, 2011). The HSLs include criteria for BTEX, naphthalene and unspeciated total recoverable hydrocarbons (TRH).

The HSLs for vapour intrusion have been developed to provide assessment of chronic human health risks and do not consider issues such as aesthetics, explosion risks or environmental considerations. Different HSLs are provided for a variety of exposure settings including: low – high density residential; recreational/open space; and commercial / industrial land uses. Different HSLs have also been derived for different soil types i.e. sand/silt/clay and different depths of impact.

Based on the proposed end land use, it is considered that the HSL-D (commercial/industrial land use) is the appropriate health screening levels for the soil analytical results.

Soil Type

The HSLs for vapour intrusion are dependent on soil type and depth. The current environmental and concurrent geotechnical investigation indicated that the dominant soil type (>50% of the soil profile) is clay, however, topsoil consisting of gravels and sands was observed in topsoil (0.2-0.7 mbgl) and angular gravel was observed in fill materials (0.2 – 0.7 mbgl) as a minor inclusion. Therefore it is considered that the predominant soil type for the selection of HSLs is clay.

Depth Consideration

The standing groundwater depth varies from approximately 3.17 to 3.51 mbgl based on observations recorded during borehole drilling. The different in groundwater depth at the time of sampling indicates groundwater is present as a semi confined system. As such the Groundwater HSLs for vapour intrusion are considered appropriate guidelines when assessing groundwater analytical results. The groundwater HSLs for vapour intrusion 2-4 m depth are considered appropriately conservative.

Additional Considerations

The HSLs are considered appropriate for the site given:

- Petroleum hydrocarbons are identified as COPC;
- Groundwater is not used for irrigation on the site and is at depths greater than 2 m below ground surface;
- The investigation area is not conservation land;
- There is no evidence to suggest the identified COPC are a result of a solvent spill rather than petroleum spill/leak; and
- There is no evidence to suggest the identified contamination is an atypical petroleum mixture;

4.2.1.2 Health Investigation levels (HILs)

The ASC NEPM (NEPC, 2013) provides risk-based Health Investigation Levels (HIL) for selected organic and inorganic chemicals in soils. The HILs are applicable for assessing human health risk via all relevant pathways of exposure.

Different levels are provided for a variety of exposure settings including residential, open-space / parks / recreational and commercial / industrial land uses. Based on the proposed land use it is considered the

NEPM HIL Level D (for commercial/industrial land use) are the appropriate health-based investigation levels for the soil analytical results based on the proposed end use.

4.2.1.3 Ecological Screening Levels (ESLs)

The revised NEPM (NEPC, 2013) also requires that ecological assessment be considered on all sites, even those with no significant ecological environments. The revised NEPM incorporates the Ecological Screening Levels (ESLs) for petroleum hydrocarbons in soil,

The ESLs are provided for several land use scenarios and are relevant for the root zone in soil which corresponds to the top 2 m of the finished level of a site.

Three land use scenarios considered for the ESLs are: areas of ecological significance; urban, residential and public open space; and commercial/ industrial. The ESLs are relevant for the root zone in soil which corresponds to the top 2 m of the finished level of a site. Different ESLs have been derived for different exposure settings. Given the current zoning of the site and the surrounding land use, the Commercial / Industrial category is considered appropriate for the site.

ESLs are provided for both coarse and fine grained soils. Given the reported soil profile as comprising predominantly clays, the fine grained guidelines are considered appropriate for the assessment.

4.2.1.4 Environmental Investigation Levels (EILs)

Ecological investigation levels (EILs) have been developed for selected metals and organic substances and are applicable for assessing risk to terrestrial ecosystems. EILs depend on specific soil physicochemical properties and land use scenarios and generally apply to the top 2 m of soil. EILs have been developed for three generic land use settings which include areas of ecological significance; urban residential areas and public open space; and commercial and industrial land uses.

EILs are available for “fresh” (less than 2 years) and “aged” (greater than 2 years) contamination in soil. EILs for “aged” contamination for commercial/industrial land use have been adopted.

Under the ASC NEPM (NEPC, 2013) site specific EILs are calculated for zinc, copper, chromium III and nickel. Generic EILs are available for lead, arsenic, DDT and naphthalene. The site specific EILs are calculated based on the following formula:

EIL = ACL + ABC

ACL = Added contaminant limit. The ACL is calculated based on soil specific properties such as pH, cation exchange capacity (CEC) and clay content.

ABC = Ambient background concentration. The ABC is the naturally occurring level of the contaminant. This can be measured by using the concentration of a soil sample collected at a reference site not impacted by the contaminant. Where a reference site cannot be determined the ABC can be estimated based on urban metal levels as specified in the ASC NEPM. A reference site could not be identified for this investigation therefore the ABC was estimated.

In order to calculate EILs, the “Ecological Investigation level – Interactive (excel) calculation spreadsheet December 2010” developed by the CSIRO for the NEPC was used using the most conservative values available to estimate site-specific soil physicochemical parameters. The spread sheet is located at the ASC NEPM toolbox website - http://www.scew.gov.au/node/941.

Table 9: Soil Properties used in ACL calculation

Soil Property	Units	Value used in ACL calculation
pH	pH Units	7
Clay in soils <2um	% (w/w)	10
Cation Exchange Capacity	cmolc/kg dwt	10
Total Organic Carbon	%	1

The ABC was estimated based on a site location in NSW and a low traffic area.

4.2.1.5 Management limits

The amended NEPM includes 'Management Limits' that are designed to avoid or minimise the potential effects of petroleum hydrocarbons such as:

- Formation of observable Light Non-Aqueous Phase Liquids (LNAPL),
- Fire and explosive hazards; and
- Effects on buried infrastructure e.g. penetration of, or damage to, in-ground services by hydrocarbons.

The Management Limits have not been considered in this current investigation due to the conservative nature of these guidelines. They are generally applied after the consideration of the relevant HSLs and ESLs.

4.2.2 Groundwater Investigation Levels

Groundwater investigation levels (GILs) are based on the ANZECC/ARMCANZ (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality,* the *Australian Drinking Water Guidelines* (2011) (ADWG) and *Guidelines for Managing Risk in Recreational Waters*, (2008) (GMRRW). The GILs are adopted in amended ASC NEPM (NEPC, 2013) as investigation levels for risk-based assessment of groundwater contamination. GILs are applicable for assessing human health risk and ecological risk from direct contact (including consumption) with groundwater. The adopted investigation levels for the groundwater investigation are discussed in the following subsections.

The quality of groundwater in the vicinity of the site indicates that groundwater may be suitable for human consumption, stock watering, irrigation and industrial purposes. Given the availability of reticulated water in the area, it is considered that the extraction of groundwater for domestic supply is unlikely.

4.2.2.1 Environmental Guidelines

Investigation levels have been adopted from the ANZECC/ARMCANZ (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* to evaluate the groundwater analytical results. These guidelines provide environmental based trigger values for concentrations of organic and inorganic chemicals in freshwater and marine aquatic environments.

As the potential down-gradient groundwater receptor (Bow Bowing River) is a freshwater body, the trigger levels for freshwater water aquatic ecosystems have been adopted. It is considered that ecosystems with high conservation value are not present in the investigation area and therefore the 95% level of protection has been adopted. This protection level applies to ecosystems that could be classified as slightly to moderately disturbed.

4.2.2.2 Health Screening Levels (HSLs)

As discussed in Section 4.2.1, the amended ASC NEPM (NEPC, 1999) also incorporates HSLs for vapour intrusion for petroleum hydrocarbons in groundwater. The groundwater HSLs for vapour intrusion include criteria for BTEX, naphthalene and unspeciated TRH.

The groundwater HSLs for vapour intrusion have been developed to provide assessment of chronic human health risks and do not consider issues such as aesthetics, explosion risks or environmental considerations. The groundwater HSLs, for vapour intrusion, are also considered to be protective of direct contact and the direct contact pathway has not been assessed separately. HSLs are provided for a variety of exposure settings, soil types and depths.

The groundwater HSL-D (commercial/industrial) are considered the most appropriate for groundwater analytical results.

Soil Type

The bore log records provided in Appendix I indicate that the dominant soil type (>50% of the soil profile) at investigation locations is clay. Therefore, it is considered that the predominant soil type for the selection of HSLs is clay.

Depth Consideration

Groundwater beneath the site was intercepted at a standing groundwater depth that varies from approximately 3.17 to 3.51 mbgl. Therefore a depth of 4-8m is considered appropriately conservative for the assessment of groundwater.

Additional Considerations

The HSLs are considered appropriate for the investigation area given the additional considerations outlined previously in Section 4.2.1.1.

5.0 SUMMARY OF INVESTIGATION RESULTS

5.1.1 Site Specific Geology

The subsurface ground conditions encountered during the investigation works are summarised below.

Table 10: Investigation Specific Geology

Depths (mbgl)	Lithology
0 – 0.2	ASPHALT/CONCRETE.
0.2 - 0.7	Variable FILL comprising mainly gravelly SAND, dark grey to pale brown, fine to coarse, with some sub-angular sedimentary cobbles and some low plasticity clay
0.7 – 1.5	FILL comprising of residual CLAY, brown grey, medium to high plasticity, with some dark grey to medium sub-angular gravels, with some rootlets
1.5 - 2.5	FILL comprising of residual CLAY, dark brown, high plasticity, very compacted
2.5 – 7.10	Residual sandy CLAY, grey with orange brown, high plasticity, fine to medium grained sand, with some fine to medium, angular to sub-rounded igneous and sedimentary gravel

Ground conditions underneath the asphalt or concrete typically comprised of a sandy gravelly topsoil underlain by a medium plasticity clay fill layer of variable thickness (0.5 to 4.4 m bgl); overlying high plasticity clays and sandy clays to the maximum depth of investigation (7.1 mbgl).

Moist conditions were encountered at depths greater than 3 to 4 mbgl indicating the potential presence of groundwater bearing zones at these depths. No perched groundwater was observed during the investigation. Groundwater monitoring wells were therefore screened to target the semi confined groundwater encountered at greater than 4m depth. Bore logs illustrating the geology encountered during drilling and well construction details are presented in APPENDIX E.

Field head space concentrations of VOCs measured using a field portable PID for the collected soil samples varied from below detection limit (0 parts per million (ppm) to 10 ppm (GA-BH02). The field head space PID screening results for VOCs are presented in the borehole logs (APPENDIX E).

5.1.2 Site Specific Hydrogeology

The investigation area hydrogeological details are summarised below.

Table 11: Investigation Area Specific Hydrogeology

Item	Details
Depth to Groundwater	Standing water levels ranged from 3.17 metres below top of casing (mbtoc) at MW4 to 3.51 mbtoc at MW1. Groundwater gauging data is presented in Table 3 (APPENDIX B).
Groundwater Flow Direction	The inferred flow direction in groundwater is to be interpreted in a general north west direction, which is consistent with the previous investigation (Golder, 2016). However, the SWL in MW5 appears as an anomaly, and may be receiving recharge from the adjacent car wash (Figure 3 of APPENDIX A).
Groundwater odour and presence of PSH	No hydrocarbon odours or sheens were noted during the sampling of the newly installed groundwater monitoring wells. The presence of phase separated hydrocarbons (PSH) was not detected within any of the groundwater monitoring wells.
Groundwater Electrical Conductivity (EC)	EC ranged from 1510 (MW3) to 16332 (MW2) microSiemens per centimetre (µS/cm), indicating the off-site groundwater is slightly brackish to brackish.
Groundwater pH	pH ranged from 6.31 (MW5) to 6.94 (MW3), indicating groundwater was near neutral.

Groundwater Redox Potential (Eh)	Eh ranged from -123 (MW3) to 117 (MW5) indicating reducing to slightly oxidising groundwater conditions.
Groundwater Dissolved Oxygen (DO)	DO ranged between 0.02 ppm (MW3) and 1.37 ppm (GA-BH02) indicating low to high oxygenated groundwater conditions.

Table Notes:

Summary table provides details of groundwater parameters measured during groundwater monitoring event completed on 21 June 2016

5.1.3 Soil Analytical Results

Soil analytical results were tabulated and compared against adopted investigation criteria. Copies of the laboratory certificates of analysis are provided in APPENDIX G. A summary table of soil analytical results can be found in APPENDIX B (Table 1A and Table 1B).

- The soil samples collected during the investigation reported concentrations below the LOR and / or the adopted assessment criteria except for
  - TRH >C_{10} - C_{16} Fraction F2 reported an exceedance of the Management Limit criteria in the following samples: MW4_01 (0.16-0.2 mbgl), SB6_01 (0.18-0.25 mbgl) and SB6_03 (1.0-1.1 mbgl).
  - TRH C_6 - C_{10} Fraction Less BTEX F1 reported an exceedance for the ESL criteria for SB6_01 (depth range of 0.18-0.25) and SB6_03 (depth range of 1.0-1.1).

5.1.4 Groundwater Analytical Results

Groundwater analytical results were tabulated and compared against adopted criteria.

It is noted that the LORs were in some cases higher than the trigger values adopted as groundwater assessment criteria. In instances where the LOR is greater than the assessment level, the *Guidelines for the Assessment and Management of Groundwater Contamination* (DEC 2007) states that the LOR should be used instead of the generic groundwater investigation level. Hence, in this instance the LOR has been used instead of the groundwater assessment criteria.

Copies of the laboratory certificates of analysis are provided in APPENDIX G. A summary table of groundwater analytical results can be found in APPENDIX B (Table 2).

- The groundwater samples collected during the investigation reported concentrations below the LOR and / or the adopted assessment criteria except for
  - Naphthalene, within monitoring wells MW3 and MW4, reported an exceedance of the fresh water GIL criteria.
  - cadmium within monitoring well MW2 and MW5, which reported a minor exceedance of the fresh water GIL criteria. Note that a cadmium exceedance was not reported at MW4 which is slightly downgradient to MW5.
  - zinc within MW2, MW3, MW4 and MW5, which reported exceedances of the fresh water GIL criteria. Note that zinc exceedances occurred both up- and down-gradient of the site. (Note: zinc exceedances occurred in the previous investigation report as well and therefore, exists site-wide).
  - Nickel: within MW4 and MW5, which reported minor exceedances of the fresh water GIL criteria.

Note that the laboratory LOR was greater than assessment criteria for the following selected compounds, shown in the table below.

Table 12: Analytes with a greater LOR than the assessment criteria.

Analyte Group	Analyte	NEPM Criteria (µg/L)	LOR (µg/L)
Organochlorine Pesticides	endrin	0.004	0.1
Organophosphorous Pesticides	chlorpyriphos	0.009	0.2
PAH	naphthalene	50	200

5.2 Quality Assurance and Quality Control

5.2.1.1 Quality Assurance Plan

Data Quality Objectives (DQOs) adopted for this investigation were broadly in accordance with those recommended by the United States Environment Protection Agency (USEPA) 2000 documents: *Guidance for the Data Quality Objective Process and Data Quality Objectives Process for Hazardous Waste Site Investigations* which are also in accordance with the requirements of the NSW EPA.

Specific mechanisms for checking the accuracy and precision of analytical data in order to ensure that DQOs are met involve the analysis of laboratory and field quality control (QC) samples.

QC samples collected during the soil investigation included:

- One intra-laboratory duplicate sample: DUPB (Duplicate of SB6_01)
- One inter-laboratory duplicate sample: TRIPB (Duplicate of SB6_01).
- Four rinsate blanks (RB001, RB002, RB003, RB10)
- Four field blanks (FB001, FB002, FB003, FB10)

QC samples collected during the groundwater monitoring events included:

- One intra-laboratory duplicate sample: QC100 (Duplicate of MW4); and
- One inter-laboratory duplicate sample: QC200 (Triplicate of MW4)
- One rinsate blank (RB100)
- One field blank (FB100)

In addition to field QC samples, the laboratory prepared and analysed the following QC samples with each laboratory batch:

- Laboratory duplicates;
- Laboratory blanks;
- Surrogate spikes;
- Matrix spikes; and
- Laboratory control samples.

5.2.1.2 Data Validation

The validity of analytical data was assessed by critical review of the QC sample results. This was performed in accordance with USEPA guidelines as presented in the document *National Functional Guidelines for Superfund Organic Methods Data Review, June 2008* (USEPA, 2008).

Accuracy and precision measurements from the appropriate QC check samples were compared with the analytical DQOs to assess the quality of the analytical data. The primary objective of the data validation process was to ensure that the data reported is suitable to be used to achieve the investigation objectives.

On the basis of the outcome of the validation procedure employed, the overall quality of the analytical data is considered to be of an acceptable standard for interpretive use. It is noted, however, that the limit of reporting (LOR) has been raised due to matrix interference (as stated by SGS). This resulted in three analytes (shown in) having a LOR greater than the criteria. The new LOR of these samples has been adopted as the new assessment criteria.
The data validation summary reports and analytical results for QA/QC samples for each batch are included in APPENDIX C.

6.0 PRELIMINARY CONCEPTUAL SITE MODEL

A preliminary conceptual site model (CSM) aims to provide an understanding of the potential for exposure to site COPCs and associated impacts on the proposed construction activities and future use of the site.

Identified potential contamination sources comprise those listed above and shown in Appendix 1, Figure 2. The main contaminant sources of concern, in summary, include: the three ASTs; the bowsers and refuelling station; the storage of paints, thinners and solvents; the car build shed; the car wash bays; historical riverbed (filled in in the 1970s) ; the bakehouses (spray paint booths); mounds of imported fill and stockpiles.

The contaminant sources and migration or exposure pathways identified have the potential to form pollutant linkages which may pose a risk to a receptor. These can be summarised in the following conceptual site model:

Migration and exposure pathways considered include:

- Direct contact with impacted fill/soil.
- Incidental ingestion of impacted soil.
- Inhalation of soil derived dust.
- Inhalation of volatile contaminants.
- Migration of volatile contaminants from sub surface (vapour intrusion)
- Migration of contaminants to surface water / groundwater

Potential receptors, based on the proposed construction activities and proposed future land use were identified as:

- Demolition or construction workers on the site.
- Future site users following redevelopment.
- Maintenance workers following redevelopment.
- On-site flora and fauna, where present.
- Surface water (Bow Bowing River).
- Groundwater (particularly shallower groundwater)

The contaminant sources and migration or exposure pathways identified have the potential to form pollutant linkages which may pose a risk to a receptor. These can be summarised as a conceptual site model as presented in Table 13.

Table 13: Conceptual Site Model

Sources/Items	Pathways	Receptors
Historical agricultural activities. Vehicle storage and miscellaneous vehicle activities.	Direct contact with impacted soil.	Site construction workers. Future site users. Maintenance workers following redevelopment. Future maintenance workers. On-site flora and fauna.
	Incidental ingestion of impacted soil.	Site construction workers. Future site users. Maintenance workers following redevelopment.

Fill of unknown quality. Leaks or spills associated with fuel storage tanks or paint and related chemicals stored on site.		Future maintenance workers. On-site fauna.
	Inhalation of soil derived dust.	Site construction workers. Future site users. Maintenance workers following redevelopment. Future maintenance workers. On-site fauna.
	Inhalation of volatile contaminants.	Site construction workers. Future site users. Maintenance workers following redevelopment. Future maintenance workers. On-site fauna.
	Migration of contaminants to surface water / groundwater	Site groundwater. Bow Bowing River.

The results of the limited Phase II indicated the contamination concentrations in the samples analysed were below the adopted guidelines and therefore, are not considered a risk to receptors.

7.0 DISCUSSION

7.1 Soil

The soil investigation undertaken reported an exceedance for the NEPM 2013 Management Limit criteria at two locations (SB6 and MW4) for TRH >C_{10}-C_{16} Fraction F2. These locations are in close proximity to and hydraulically down-gradient of the fuel storage area. MW4 has exceedances at 0.16-0.21m bgl and SB6 had exceedances at depths from 0.18 m bgl to 1.0-1.1mbgl, showing deeper contamination at this location. A sample from SB6 was collected at 2.0m and was below the adopted site criteria for TRH >C_{10}-C_{16} Fraction F2. Similarly, a sample was collected from MW4 at 0.5m and was below the adopted LOR and site criteria for TRH >C_{10}-C_{16} Fraction F2. The extent of the contamination has not been delineated to the east of SB6 and northwest of the monitoring locations.

These exceedances highlight the requirement for additional soil remediation to occur in conjunction with the removal of the fuel storage infrastructure. It is noted that SB5 and MW5 (south of the fuel structure) did not exceed the criteria for this analyte and thus, there should be a focus on the additional soil remediation in the area immediate northern and east sides of the fuel infrastructure.

There were two exceedances of the ESL criteria at location SB6 (at 0.18-0.25m bgl and 1.0-1.1m bgl). Due to the proposed commercial / industrial development and as there are no major ecologically sensitive receptors in close proximity of these exceedances it is not considered to warrant further assessment or remediation.

7.2 Groundwater

There were minor exceedances of the NEPM 2013 GILs of cadmium, zinc and nickel.

Cadmium is considered unlikely to present a risk to site occupants and the surrounding ecological receptors based on the single occurrence on site and marginal exceedance of the GILs.

Zinc exceedances were reported in four of the monitoring wells and also reported in the previous investigation report in groundwater entering the site from both the south and eastern boundary (Golder, 2016). Therefore, elevated zinc groundwater concentrations are likely indicative of natural background conditions.

Nickel exceedances were found near the fuel infrastructure, but are very minor exceedances and therefore, not considered to present a risk based on the future land development and the distance to the surrounding ecological receptors.

There were exceedances of the NEPM 2013 GILs (fresh water) criteria reported for naphthalene at monitoring wells MW3 and MW4. Both of these wells are in close proximity to the fuel infrastructure (see APPENDIX A, Figure 2). The exceedances could present a potential risk harm to the nearest ecological receptor (Bow Bowing Creek), and the impacts have not been delineated in the central portion of the site. However, the impacts were not identified in the downgradient monitoring during the previous investigation (Golder, 2016). These impacts will need to be considered during the future redevelopment of the site, to ensure impacted water is not extracted and directly discharge to the environment during future works.

8.0 CONCLUSIONS

An assessment of the soil and groundwater quality at nominated locations positioned in the central precinct of the site, indicates that additional soil remediation works will be required in the area surrounding the fuel infrastructure. The remedial works will be defined within a remediation action plan (RAP), which will prescribe the actions required to complete the removal and remediation of the refuelling infrastructure and the soils located to the north and east of the fuel infrastructure (see APPENDIX A, Figure 2 for the proposed RAP).

Site Suitability

Based on the results of the investigation, conditions on site are unlikely to prevent the proposed commercial/industrial redevelopment. However, it is recommended that a RAP be developed for the removal of the fuel infrastructure and the associated impacted soil identified below and surrounding the fuel infrastructure (see APPENDIX A, Figure 6). Furthermore, the construction environmental management plan (CEMP) will need to consider the presence of elevated concentrations of naphthalene in the groundwater in central portion of the site (GW3, and GW4), and appropriate controls will need to put in place to prevent the direct discharge of impacted groundwater extracted during the redevelopment works.

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Report Signature Page

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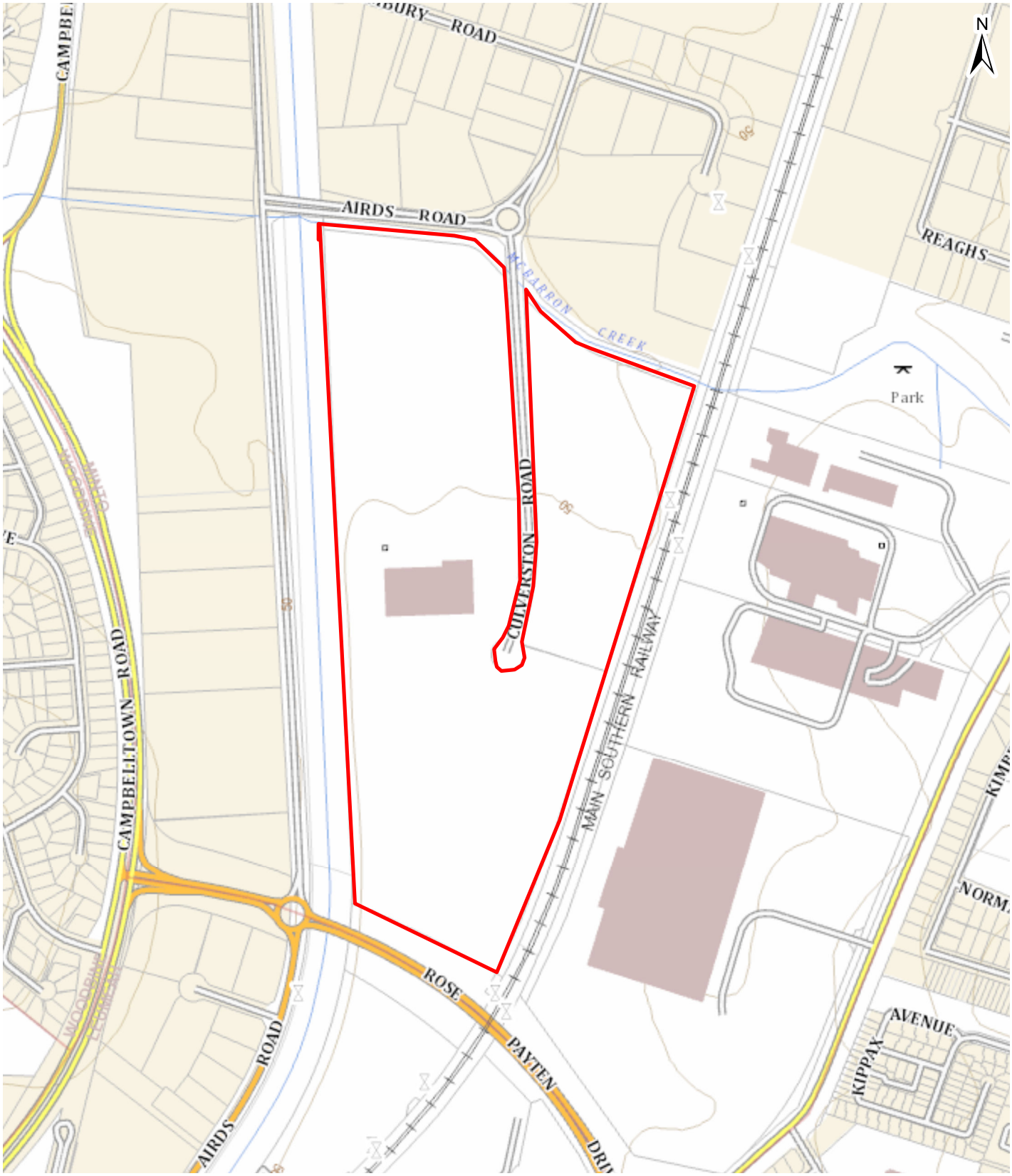
APPENDIX A

Figures



MINTO INTERMODAL TERMINAL

TACTICAL

SITE LOCALITY

LEGEND

Site Boundary

0 20 40 80 120 160 200 metres

SCALE (at A4) 1:8,500

DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: **1648232**
DATE: **7/07/2016**
DRAWN: **NS**
CHECKED: **BS**

FIGURE 1

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MINTO INTERMODAL TERMINAL

TACTICAL

SITE OVERVIEW AND INVESTIGATION LOCATIONS

LEGEND

- Borehole
- Monitoring Well
- Fuel Infrastructure - ASTs
- Fuel Infrastructure - Bowsers
- Main Warehouse
- Site Entrance
- Car Wash Bay

0 4 8 16 24 32 40 metres

SCALE (at A4) 1:1,500

DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: **1648232**
DATE: **12/07/2016**
DRAWN: **NS**
CHECKED: **BS**

FIGURE 2

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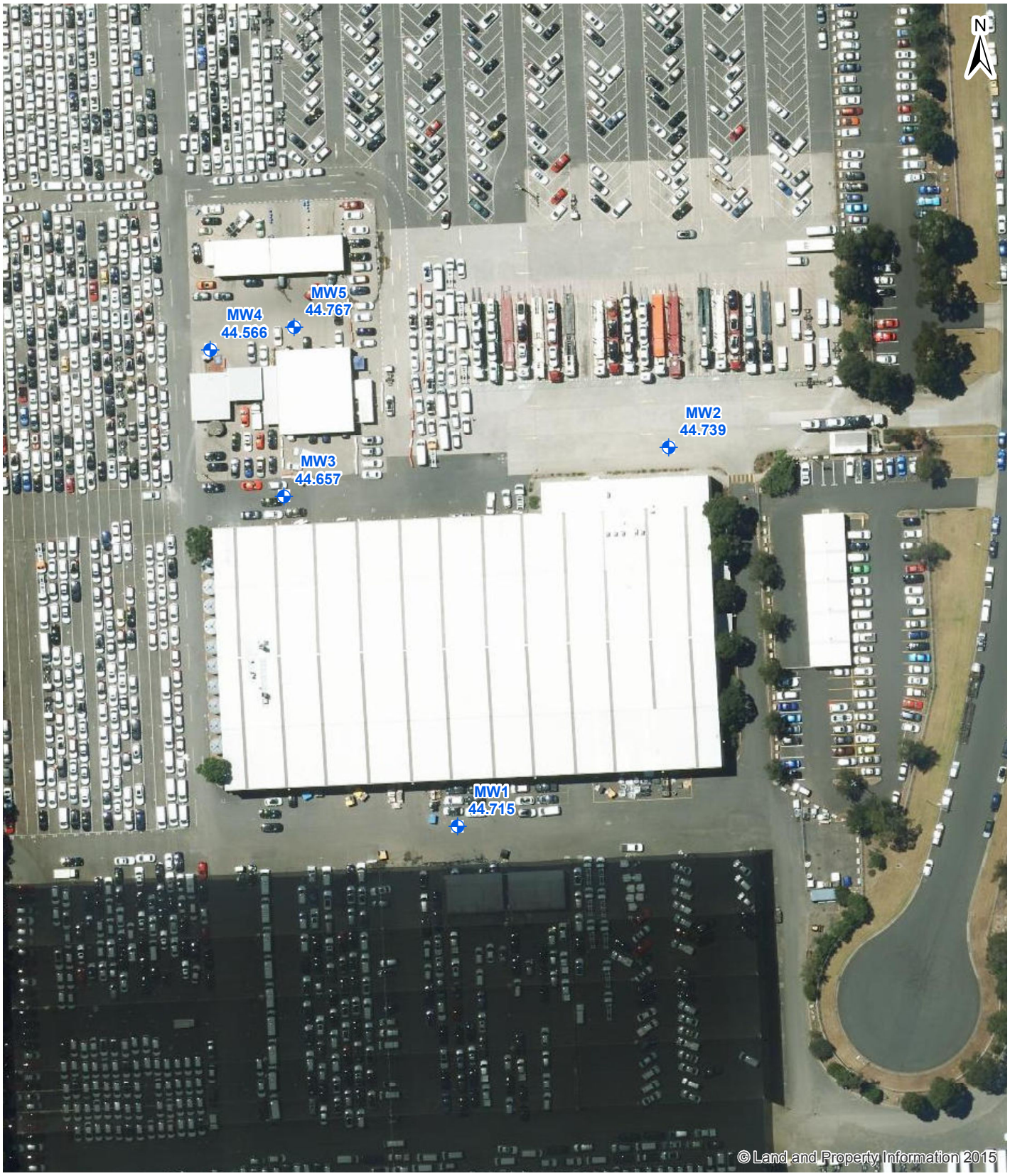

MINTO INTERMODAL TERMINAL

TACTICAL

GROUNDWATER ELEVATIONS (mAHD)

LEGEND

Monitoring Well

44.44 Groundwater Elevation (mAHD)

0 4 8 16 24 32 40 metres

SCALE (at A4) 1:1,500

DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: **1648232**
DATE: **12/07/2016**
DRAWN: **NS**
CHECKED: **GS**

FIGURE 3

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MINTO INTERMODAL TERMINAL

TACTICAL

SOIL EXCEEDANCE LOCATIONS

LEGEND

- Borehole
- Monitoring Well

0 4 8 16 24 32 40 metres

SCALE (at A4) 1:1,500

DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: **1648232**
DATE: **12/07/2016**
DRAWN: **NS**
CHECKED: **BS**

FIGURE 4

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MINTO INTERMODAL TERMINAL

TACTICAL

GROUNDWATER EXCEEDANCE LOCATIONS

LEGEND

- Borehole
- Monitoring Well

0 4 8 16 24 32 40 metres

SCALE (at A4) 1:1,500

DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: 1648232
DATE: 12/07/2016
DRAWN: NS
CHECKED: BS

FIGURE 5

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MINTO INTERMODAL TERMINAL

TACTICAL

Proposed Remedian Action Plan (RAP) Area

LEGEND

Proposed RAP Area

0 4 8 16 24 32 40 metres

SCALE (at A4) 1:1,500

DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: **1648232**
DATE: **8/07/2016**
DRAWN: **NS**
CHECKED: **BS**

FIGURE 6

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APPENDIX B

Tables

Golder Associates

1648232
Minto Warehouse and Logistics Hub
Table 1A - Soil Analytical Table
SB1-6

Location ID	SB1	SB2	SB3	SB4	SB5	SB5	SB6			SB6	SB6
Sample ID	SB1_01	SB2_01	SB3_01	SB4_01	SB5_02	SB5_05	SB6_01	DUPB	TRIPB	SB6_03	SB6_05
Depth Range	0.19-0.21	0.2-0.3	0.2-0.3	0.2-0.3	0.7-0.9	2.1-2.3	0.18-0.25	0.18-0.25	0.18-0.25	1-1.1	2-2.1
Sample Date	9/06/2016	9/06/2016	9/06/2016	9/06/2016	8/06/2016	8/06/2016	7/06/2016	7/06/2016	22/06/2016	7/06/2016	7/06/2016

Analyte Group	Analyte	Unit	EQL	NEPM 2013 Commercial/Industrial D Soil HSL for Vapour Intrusion 0-1m	1-2m	2-4m	>4m	NEPM 2013 EILS-Commercial/ Industrial	*NEPM 2013 ESLs-Commercial and industrial, Fine Soil*	NEPM 2013 HIL-Commercial /Industrial D Soil	NEPM 2013 Mgmt Limits Commercial /Idustrial, Fine Soil											
Amino Aliphatics	n-Nitrosodiethylamine	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1
	N-Nitrosodi-n-butylamine	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	N-Nitrosodi-n-propylamine	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	n-Nitrosomethylethylamine	mg/kg	0.5									-	-	-	-	-	-	-	-	<0.5	-	-
Amino Aromatics	1-Naphthylamine	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1
	2-Naphthylamine	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1
	Diphenylamine	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	n-Nitrosodiphenylamine & Diphenylamine	mg/kg	0.5									-	-	-	-	-	-	-	-	<1	-	-
Anilines	2-Nitroaniline	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	3-Nitroaniline	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	4-Chloroaniline	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1
	4-Nitroaniline	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1
	2-methyl-5-nitroaniline	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1
	Aniline	mg/kg	3									<3	<3	<3	<3	<3	<3	<3	<3	<0.5	<3	<3
	2-methylaniline	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1
Asbestos	Asbestos in soil (>7mm ACM)	%w/w	0.01							0.05		-	-	-	-	-	-	-	-	-	-	-
	Asbestos in soil (<2mm AF/FA)	%w/w	0.001									-	-	-	-	-	-	-	-	-	-	-
	Asbestos in soil (<7mm AF/FA)	%w/w	0.001							0.001		-	-	-	-	-	-	-	-	-	-	-
	Asbestos in soil (>2mm to <7mm AF/FA)	%w/w	0.001									-	-	-	-	-	-	-	-	-	-	-
	Weight Asbestos in soil (<7mm AF/FA)	g	0.0001									-	-	-	-	-	-	-	-	-	-	-
	Weight Asbestos in soil (>7mm ACM)	g	0.01									-	-	-	-	-	-	-	-	-	-	-
	Weight Asbestos in soil (>2mm to <7mm AF/FA)	g	0.0001									-	-	-	-	-	-	-	-	-	-	-
E-Nitrobenzenes	Nitrobenzene	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Pentachloronitrobenzene	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Explosives	1,3,5-Trinitrobenzene	mg/kg	0.5									-	-	-	-	-	-	-	-	<0.5	-	-
	1,3-Dinitrobenzene	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1
	2,4-Dinitrotoluene	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5
	2,6-Dinitrotoluene	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5
Herbicides	Pronamide	mg/kg	0.5									-	-	-	-	-	-	-	-	<0.5	-	-
	Trifluralin	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
Organophosphorous Pesticides	Azinphos-methyl	mg/kg	0.2									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2
	Bromophos-ethyl	mg/kg	0.2									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2
	Carbophenothion	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Chlorfenvinphos	mg/kg	0.5									-	-	-	-	-	-	-	-	<0.5	-	-
	Chlorfenvinphos E	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Chlorpyriphos	mg/kg	0.2							2000		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2
	Chlorpyriphos-methyl	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	cis-Chlorfenvinphos	mg/kg	2									<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2
	Coumaphos	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Diazinon	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dichlorvos	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dimethoate	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Disulfoton	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	EPN	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Ethion	mg/kg	0.2									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2
	Ethoprop	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Fenamiphos	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Fenitrothion	mg/kg	0.2									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2
	Fenthion	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Malathion	mg/kg	0.2									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2
	Methidathion	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Parathion-methyl	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Mevinphos	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<2	-	<1	<1
	o,o,o-Triethylphosphorothioate	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Parathion	mg/kg	0.2									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2
	Phorate	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Pirimphos-ethyl	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Prothiofos	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Ronnel	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Stirophos	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
PAH-Others	1-Methylnaphthalene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	0.2	5.4	1.3	-	11	1.2
	2-Chloronaphthalene	mg/kg	0.5									-	-	-	-	-	-	-	-	<0.5	-	-
	2-Methylnaphthalene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	7.8	1.9	16	18	2
	3-Methylcholanthrene	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	7,12-Dimethylbenz(a)anthracene	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Golder Associates

1648232
Minto Warehouse and Logistics Hub
Table 1A - Soil Analytical Table
SB1-6

Location ID	SB1	SB2	SB3	SB4	SB5	SB5	SB6			SB6	SB6
Sample ID	SB1_01	SB2_01	SB3_01	SB4_01	SB5_02	SB5_05	SB6_01	DUPB	TRIPB	SB6_03	SB6_05
Depth Range	0.19-0.21	0.2-0.3	0.2-0.3	0.2-0.3	0.7-0.9	2.1-2.3	0.18-0.25	0.18-0.25	0.18-0.25	1-1.1	2-2.1
Sample Date	9/06/2016	9/06/2016	9/06/2016	9/06/2016	8/06/2016	8/06/2016	7/06/2016	7/06/2016	22/06/2016	7/06/2016	7/06/2016

				NEPM 2013 Commercial/Industrial D Soil HSL for Vapour Intrusion	NEPM 2013 EILS-Commercial/ Industrial	*NEPM 2013 ESLs-Commercial and industrial, Fine Soil*	NEPM 2013 HIL-Commercial /Industrial D Soil	NEPM 2013 Mgmt Limits Commercial /Idustrial, Fine Soil										
Pesticides-Others	Carbaryl	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Carbazole	mg/kg	0.5						-	-	-	-	-	-	-	-	<0.5	-	-
	Carbofuran	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Chlorobenzilate	mg/kg	0.5						-	-	-	-	-	-	-	-	<0.5	-	-
	Demeton-s-methyl	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Famphur	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Isodrin	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
	Mirex	mg/kg	0.1				100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
	Pirimiphos-methyl	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Profenofos	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Sulfotepp	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Thionazin	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1
Phenolics	2,4-Dimethylphenol	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methylphenol	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Nitrophenol	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	3- & 4- Methylphenol	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	<0.6	<1	<1
	4-Nitrophenol	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1
	Phenol	mg/kg	0.5				240000		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenolics-Halogenated	2,3,4,6-Tetrachlorophenol	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	2,4,5-Trichlorophenol	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,6-Trichlorophenol	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dichlorophenol	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.9	<0.5	<0.5	<1.4	<0.5
	2,6-Dichlorophenol	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Chlorophenol	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chloro-3-methylphenol	mg/kg	2						<2	<2	<2	<2	<2	<2	<2	<2	<0.5	<2	<2
	Pentachlorophenol	mg/kg	0.5				660		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5
Phthalates	Bis(2-ethylhexyl) phthalate	mg/kg	5						<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
	Butylbenzyl phthalate	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Diethyl phthalate	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dimethyl phthalate	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Di-n-butyl phthalate	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Di-n-octyl phthalate	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Polychlorinated Biphenyls	PCB 101	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
	PCB 118	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
	PCB 138	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
	PCB 153	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
	PCB 180	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
	PCB 28	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
	PCB 52	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
Sample Quality Parameters	Moisture	%	0.5						9.9	17	12	13	14	15	20	20	18.4	17	19
SVOCs	1,4-Naphthoquinone	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	2-(Acetylamino) fluorene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Picoline	mg/kg	0.5						-	-	-	-	-	-	-	-	<0.5	-	-
	3,3-Dichlorobenzidine	mg/kg	0.5						-	-	-	-	-	-	-	-	<0.5	-	-
	4-(Dimethylamino) azobenzene	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1
	4-Aminobiphenyl	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1
	4-Bromophenyl phenyl ether	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chlorophenyl phenyl ether	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Nitroquinoline-n-oxide	mg/kg	0.5						-	-	-	-	-	-	-	-	<0.5	-	-
	Acetophenone	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Azobenzene	mg/kg	1						-	-	-	-	-	-	-	-	<1	-	-
	Benzyl alcohol	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1
	Bis(2-chloroethoxy) methane	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Bis(2-chloroethyl) ether	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Bis(2-chloroisopropyl) ether	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Dibenzofuran	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Ethylmethanesulfonate	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1
	Hexachlorocyclopentadiene	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	<2.5	<1	<1
	Hexachloropropene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	cis-Isosafrole	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1
	trans-Isosafrole	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1
	Methapyrilene	mg/kg	0.5						-	-	-	-	-	-	-	-	<0.5	-	-
	Methyl methanesulfonate	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1
	n-Nitrosomorpholine	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	N-Nitrosopiperidine	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	n-Nitrosopyrrolidine	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Phenacetin	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1
	Safrole	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5

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Table 1A - Soil Analytical Table
SB1-6

Location ID	SB1	SB2	SB3	SB4	SB5	SB5	SB6			SB6	SB6
Sample ID	SB1_01	SB2_01	SB3_01	SB4_01	SB5_02	SB5_05	SB6_01	DUPB	TRIPB	SB6_03	SB6_05
Depth Range	0.19-0.21	0.2-0.3	0.2-0.3	0.2-0.3	0.7-0.9	2.1-2.3	0.18-0.25	0.18-0.25	0.18-0.25	1-1.1	2-2.1
Sample Date	9/06/2016	9/06/2016	9/06/2016	9/06/2016	8/06/2016	8/06/2016	7/06/2016	7/06/2016	22/06/2016	7/06/2016	7/06/2016

				NEPM 2013 Commercial/Industrial D Soil HSL for Vapour Intrusion	NEPM 2013 EILS-Commercial/ Industrial	*NEPM 2013 ESLs-Commercial and industrial, Fine Soil*	NEPM 2013 HIL-Commercial /Industrial D Soil	NEPM 2013 Mgmt Limits Commercial /Industrial, Fine Soil											
Heavy Metals	Arsenic	mg/kg	3		**160**		3000		<3	4	4	3	7	5	<3	<3	<5	4	5
	Cadmium	mg/kg	0.3				900		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<1	<0.3	<0.3
	Chromium	mg/kg	0.3						9.4	9.6	8.8	8.7	11	8.4	9	8.7	12	7	9.7
	Copper	mg/kg	0.5				240000		8.1	27	9.5	45	22	19	10	6.7	11	9	13
	Lead	mg/kg	1				1500		14	15	13	14	17	14	12	11	11	13	13
	Mercury	mg/kg	0				730		<0.01	<0.01	<0.01	<0.01	0.02	0.01	<0.01	<0.01	<0.1	0.01	<0.01
	Nickel	mg/kg	0.5				6000		5.3	6.3	6.8	14	11	9.9	12	9.4	15	8.5	6.9
	Zinc	mg/kg	0.5				400000		28	34	31	33	48	37	30	25	26	29	31
Total Petroleum Hydrocarbons	TRH C37 - C40 Fraction	mg/kg	100						<100	<100	<100	<100	<100	<100	<100	<100	-	<100	<100
	TRH C6 - C9 Fraction	mg/kg	20						<20	<20	<20	<20	<20	<20	71	29	168	87	<20
	TRH C10 - C14 Fraction	mg/kg	20						<20	<20	<20	<20	<20	<20	2500	540	1450	1600	180
	TRH C15 - C28 Fraction	mg/kg	45						<45	<45	<45	<45	<45	<45	170	<45	200	110	<45
	TRH C29 - C36 Fraction	mg/kg	45						<45	<45	<45	<45	<45	<45	<45	<45	<100	<45	<45
	TRH+C10 - C36 (Sum of total) (Lab Reported)	mg/kg	110						<110	<110	<110	<110	<110	<110	2700	540	1650	1700	180
	TRH+C10 - C40 (Sum of total) (Lab Reported)	mg/kg	210						<210	<210	<210	<210	<210	<210	2700	540	1500	1700	<210
	TRH C6 - C10 Fraction F1	mg/kg	25					800	<25	<25	<25	<25	<25	<25	400	160	358	430	77
	TRH C6 - C10 Fraction Less BTEX F1	mg/kg	25			*215*			<25	<25	<25	<25	<25	<25	*400*	160	*358*	*430*	77
	TRH >C10 - C16 Fraction F2	mg/kg	25					1000	<25	<25	<25	<25	<25	<25	2500	550	1500	1600	180
	TRH >C10 - C12 Fraction Less Naphthalene F2	mg/kg	25						<25	<25	<25	<25	<25	<25	2500	540	1500	1600	180
	TRH >C16 - C34 Fraction F3	mg/kg	90			*2500*		5000	<90	<90	<90	<90	<90	<90	<90	<90	<100	<90	<90
	TRH >C34 - C40 Fraction F4	mg/kg	120			*6600*			<120	<120	<120	<120	<120	<120	<120	<120	<100	<120	<120
MAH	1,2,4-trimethylbenzene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	1,3,5-Trimethylbenzene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Benzene	mg/kg	0.1	3|4 3|4|6 3|6|9 3|10		*95*			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1
	Toluene	mg/kg	0.1			*135*			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Isopropylbenzene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.5	1.8	0.2
	n-Butylbenzene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.5	2.8	0.3
	n-Propylbenzene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.5	3.9	0.4
	p-Isopropyltoluene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	sec-Butylbenzene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.8	0.2	0.6	3.1	0.4
	Styrene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	tert-Butylbenzene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.5	0.6	<0.1
	Ethylbenzene	mg/kg	0.1			*185*			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Xylenes (m & p)	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2
	Xylene (o)	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Xylenes (Sum of total) (Lab Reported)	mg/kg	0.3	230		*95*			<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.5	<0.3	<0.3
	Total BTEX	mg/kg	0.6						<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.2	<0.6	<0.6
Organochlorine Pesticides	a-BHC	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Aldrin	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	b-BHC	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	cis-Chlordane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
	gamma-Chlordane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
	d-BHC	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	DDD	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	DDE	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	DDT	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1
	Dieldrin	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2
	Endosulfan I	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2
	Endosulfan II	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2
	Endosulfan sulphate	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Endrin	mg/kg	0.2				100		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2
	Endrin ketone	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
	g-BHC	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Heptachlor	mg/kg	0.1				50		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Heptachlor epoxide	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Methoxychlor	mg/kg	0.1				2500		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
Halogenated Benzenes	1,2,3,4-Tetrachlorobenzene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	1,2,3,5 & 1,2,4,5 Tetrachlorobenzene	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1
	1,2,3-Trichlorobenzene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	1,2,4-Trichlorobenzene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	1,2-Dichlorobenzene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	1,3-Dichlorobenzene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	1,4-Dichlorobenzene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	2-Chlorotoluene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	4-Chlorotoluene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Bromobenzene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Chlorobenzene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Hexachlorobenzene	mg/kg	0.1				80		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1
	Pentachlorobenzene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Other	Chloronaphthalenes (1- + 2-)	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1
	Di(2-ethylhexyl) adipate	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Sample weight (dry)	g	1						-	-	-	-	-	-	-	-	-	-	-

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Table 1A - Soil Analytical Table
SB1-6

Location ID	SB1	SB2	SB3	SB4	SB5	SB5	SB6			SB6	SB6
Sample ID	SB1_01	SB2_01	SB3_01	SB4_01	SB5_02	SB5_05	SB6_01	DUPB	TRIPB	SB6_03	SB6_05
Depth Range	0.19-0.21	0.2-0.3	0.2-0.3	0.2-0.3	0.7-0.9	2.1-2.3	0.18-0.25	0.18-0.25	0.18-0.25	1-1.1	2-2.1
Sample Date	9/06/2016	9/06/2016	9/06/2016	9/06/2016	8/06/2016	8/06/2016	7/06/2016	7/06/2016	22/06/2016	7/06/2016	7/06/2016

				NEPM 2013 Commercial/Industrial D Soil HSL for Vapour Intrusion	NEPM 2013 EILS-Commercial/ Industrial	*NEPM 2013 ESLs-Commercial and industrial, Fine Soil*	NEPM 2013 HIL-Commercial /Industrial D Soil	NEPM 2013 Mgmt Limits Commercial /Idustrial, Fine Soil										
Volatile Organic Compounds	1,1,1,2-Tetrachloroethane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	1,1,2,2-Tetrachloroethane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	1,1,1-Trichloroethane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	1,1,2-Trichloroethane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	1,2,3-Trichloropropane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	1,2-Dibromo-3-chloropropane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	1,2-Dibromoethane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	1,1-Dichloroethane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	1,2-Dichloroethane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	1,1-Dichloroethene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	cis-1,2-Dichloroethene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	trans-1,2-dichloroethene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	1,2-Dichloropropane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	1,3-Dichloropropane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	2,2-Dichloropropane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	1,1-Dichloropropene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	cis-1,3-Dichloropropene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	trans-1,3-dichloropropene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	2-Nitropropane	mg/kg	10						<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10
	cis-1,4-Dichloro-2-butene	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1
	trans-1,4-Dichloro-2-butene	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1
	Allyl chloride	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
	Bromochloromethane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
	Bromodichloromethane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Bromoform	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Bromomethane	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<1
	Carbon disulfide	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Carbon tetrachloride	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Chlorodibromomethane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Chloroethane	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<1
	Chloroform	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Chloromethane	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<1
	Dibromomethane	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Dichlorodifluoromethane	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<1
	Dichloromethane	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
	Hexachlorobutadiene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Hexachloroethane	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Iodomethane	mg/kg	5						<5	<5	<5	<5	<5	<5	<5	<5	<0.5	<5	<5
	Pentachloroethane	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Trichloroethene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Tetrachloroethene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Trichlorofluoromethane	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<1
	Vinyl chloride	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<0.1	<0.1
PAH	Acenaphthene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.4	<0.1	<0.5	<0.5	<0.1
	Acenaphthylene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.5	<0.2	<0.1
	Anthracene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Benz(a)anthracene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1			*1.4*			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5				40		-	-	-	-	-	-	-	-	<0.5	-	-
	Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5				40		-	-	-	-	-	-	-	-	0.6	-	-
	Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5				40		-	-	-	-	-	-	-	-	1.2	-	-
	Benzo(b)&(k)fluoranthene	mg/kg	0.2						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2
	Benzo(b)&(j)fluoranthene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
	Benzo(b+j) & Benzo(k)fluoranthene	mg/kg	1						-	-	-	-	-	-	-	-	<1	-	-
	Benzo(g,h,i)perylene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Benzo(k)fluoranthene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
	Chrysene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Dibenz(a,h)anthracene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Fluoranthene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Fluorene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.1	<0.5	<0.3	<0.1
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Naphthalene	mg/kg	0.1			**370**			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	2.6 - 5.4	<0.7 - 1.7	2.3 - 3	14 - 21	1.4 - 2.8
	Phenanthrene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	Pyrene	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1
	PAH (Sum of Common 16 PAHs - Lab Reported)	mg/kg	0.5				4000		-	-	-	-	-	-	-	-	2.3	-	-
Solvents	Methyl Ethyl Ketone	mg/kg	10						<10	<10	<10	<10	<10	<10	<10	<10	<5	<10	<10
	2-Hexanone	mg/kg	5						<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
	Methyl iso-butyl ketone	mg/kg	1						<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<1
	Acetone	mg/kg	10						<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10
	Acrylonitrile	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
	Isophorone	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Methyl-t-butyl ether	mg/kg	0.1						<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
	Vinyl acetate	mg/kg	10						<10	<10	<10	<10	<10	<10	<10	<10	<5	<10	<10

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Table 1B - Soil Analytical Table
MW1-5

Analyte Group	Analyte	Unit	EQL	NEPM 2013 0-1m	NEPM 2013 1-2m	NEPM 2013 2-4m	NEPM 2013 >4m	NEPM 2013 EILS-Commercial and industrial	*NEPM 2013 ESLs-Commercial and industrial, Fine Soil*	NEPM 2013 HIL-Commercial/Industrial D Soil	NEPM 2013 Mgmt Limits Commercial and industrial, Fine Soil	MW1	MW1	MW2	MW2	MW3	MW3	MW3	MW4	MW4	MW4	MW5	MW5
											Sample ID	MW1_01	MW1_08	MW2_01	MW2_08	MW3_02	MW3_08	MW3_09	MW4_01	MW4_02	MW4_06	MW5_02	MW5_08
											Depth Range	0.04-0.1	4.2-4.4	0.2-0.3	5.1-5.3	0.5-0.7	3.8-4	4-4.45	0.16-0.2	0.5-0.6	6.5-6.6	0.18-0.2	5.2-5.3
											Sample Date	7/06/2016	7/06/2016	8/06/2016	8/06/2016	7/06/2016	7/06/2016	7/06/2016	14/06/2016	14/06/2016	14/06/2016	7/06/2016	7/06/2016
Amino Aliphatics	n-Nitrosodiet	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	N-Nitrosodi-n	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	N-Nitrosodi-n	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	n-Nitrosomet	mg/kg	0.5									-	-	-	-	-	-	-	-	-	-	-	-
Amino Aromatics	1-Naphthylar	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	2-Naphthylar	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Diphenylami	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	n-Nitrosodipl	mg/kg	0.5									-	-	-	-	-	-	-	-	-	-	-	-
Anilines	2-Nitroaniline	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	3-Nitroaniline	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	4-Chloroanili	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	4-Nitroaniline	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	2-methyl-5-n	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Aniline	mg/kg	3									<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
	2-methylanili	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Asbestos	Asbestos in s	%w/w	0.01							0.05		<0.01	-	<0.01	-	-	-	-	-	-	-	<0.01	-
	Asbestos in s	%w/w	0.001									<0.001	-	<0.001	-	-	-	-	-	-	-	<0.001	-
	Asbestos in s	%w/w	0.001							0.001		<0.001	-	<0.001	-	-	-	-	-	-	-	<0.001	-
	Asbestos in s	%w/w	0.001									<0.001	-	<0.001	-	-	-	-	-	-	-	<0.001	-
	Weight Asbe	g	1E-04									<0.0001	-	<0.0001	-	-	-	-	-	-	-	<0.0001	-
	Weight Asbe	g	0.01									<0.01	-	<0.01	-	-	-	-	-	-	-	<0.01	-
	Weight Asbe	g	1E-04									<0.0001	-	<0.0001	-	-	-	-	-	-	-	<0.0001	-
E-Nitrobenzenes	Nitrobenzene	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Pentachloror	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Explosives	1,3,5-Trinitro	mg/kg	0.5									-	-	-	-	-	-	-	-	-	-	-	-
	1,3-Dinitrobe	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	2,4-Dinitrotol	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,6-Dinitrotol	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Herbicides	Pronamide	mg/kg	0.5									-	-	-	-	-	-	-	-	-	-	-	-
	Trifluralin	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Organophosphorous P	Azinphos-me	mg/kg	0.2									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Bromophos-e	mg/kg	0.2									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Carbophenot	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Chlorfenvinp	mg/kg	0.5									-	-	-	-	-	-	-	-	-	-	-	-
	Chlorfenvinp	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Chlorpyripho	mg/kg	0.2							2000		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Chlorpyripho	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	cis-Chlorfenv	mg/kg	2									<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Coumaphos	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Diazinon	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dichlorvos	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dimethoate	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Disulfoton	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	EPN	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Ethion	mg/kg	0.2									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Ethoprop	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fenamiphos	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fenitrothion	mg/kg	0.2									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Fenthion	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Malathion	mg/kg	0.2									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Methidathion	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Parathion-me	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Mevinphos	mg/kg	1									<1	<1	<1	<1	<1	<4	<2	<3.1	<1	<1	<1	<1
	o,o,o-Triethy	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Parathion	mg/kg	0.2									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Phorate	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Pirimphos-et	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Prothiofos	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Ronnel	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Stirophos	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PAH-Others	1-Methylnapl	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	6.4	1.6	2.5	0.4	<0.1	<0.1	<0.1
	2-Chloronapl	mg/kg	0.5									-	-	-	-	-	-	-	-	-	-	-	-
	2-Methylnapl	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	9.8	2.3	3.3	0.8	<0.1	<0.1	<0.1
	3-Methylchol	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	7,12-Dimethy	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Created by: NS
Checked by: TA

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Minto Warehouse and Logistics Hub
Table 1B - Soil Analytical Table
MW1-5

Analyte Group	Analyte	Unit	EQL	NEPM 2013 0-1m	NEPM 2013 1-2m	NEPM 2013 2-4m	NEPM 2013 >4m	NEPM 2013 EILS-Commercial and industrial	*NEPM 2013 ESLs-Commercial and industrial, Fine Soil*	NEPM 2013 HIL-Commercial/Industrial D Soil	NEPM 2013 Mgmt Limits Commercial and industrial, Fine Soil	Location ID	MW1	MW1	MW2	MW2	MW3	MW3	MW3	MW4	MW4	MW4	MW5	MW5
												Sample ID	MW1_01	MW1_08	MW2_01	MW2_08	MW3_02	MW3_08	MW3_09	MW4_01	MW4_02	MW4_06	MW5_02	MW5_08
												Depth Range	0.04-0.1	4.2-4.4	0.2-0.3	5.1-5.3	0.5-0.7	3.8-4	4-4.45	0.16-0.2	0.5-0.6	6.5-6.6	0.18-0.2	5.2-5.3
												Sample Date	7/06/2016	7/06/2016	8/06/2016	8/06/2016	7/06/2016	7/06/2016	7/06/2016	14/06/2016	14/06/2016	14/06/2016	7/06/2016	7/06/2016
Pesticides-Others	Carbaryl	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Carbazole	mg/kg	0.5										-	-	-	-	-	-	-	-	-	-	-	-
	Carbofuran	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Chlorobenzil	mg/kg	0.5										-	-	-	-	-	-	-	-	-	-	-	-
	Demeton-s-n	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Famphur	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Isodrin	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Mirex	mg/kg	0.1							100			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Pirimiphos-m	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Profenofos	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Sulfotepp	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Thionazin	mg/kg	1										<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Phenolics	2,4-Dimethyl	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Methylpher	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Nitropheno	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	3- & 4- Meth	mg/kg	1										<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	4-Nitropheno	mg/kg	1										<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Phenol	mg/kg	0.5							240000			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenolics-Halogenatec	2,3,4,6-Tetra	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,5-Trichlo	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4,6-Trichlo	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2,4-Dichlorop	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	<0.6	<0.5	<0.5	<0.5	<0.5
	2,6-Dichlorop	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Chlorophe	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chloro-3-m	mg/kg	2										<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Pentachlorop	mg/kg	0.5							660			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phthalates	Bis(2-ethylhe	mg/kg	5										<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
	Butylbenzyl p	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Diethyl phtha	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dimethyl pht	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Di-n-butyl ph	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Di-n-octyl ph	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Polychlorinated Bipher	PCB 101	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	PCB 118	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	PCB 138	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	PCB 153	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	PCB 180	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	PCB 28	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	PCB 52	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sample Quality Param	Moisture	%	0.5										8.1	17	8.6	18	8.4	15	15	12	8.6	16	22	18
SVOCs	1,4-Naphtho	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-(Acetylami	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-Picoline	mg/kg	0.5										-	-	-	-	-	-	-	-	-	-	-	-
	3,3-Dichlorot	mg/kg	0.5										-	-	-	-	-	-	-	-	-	-	-	-
	4-(Dimethyla	mg/kg	1										<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	4-Aminobiph	mg/kg	1										<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	4-Bromopher	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Chlorophe	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4-Nitroquinol	mg/kg	0.5										-	-	-	-	-	-	-	-	-	-	-	-
	Acetophenor	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Azobenzene	mg/kg	1										-	-	-	-	-	-	-	-	-	-	-	-
	Benzyl alcoh	mg/kg	1										<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Bis(2-chloroe	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Bis(2-chloroe	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Bis(2-chloroi	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dibenzofuran	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Ethylmethan	mg/kg	1										<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Hexachloroc	mg/kg	1										<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Hexachlorop	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	cis-Isosafrole	mg/kg	1										<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	trans-Isosafr	mg/kg	1										<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Methapyrilen	mg/kg	0.5										-	-	-	-	-	-	-	-	-	-	-	-
	Methyl metha	mg/kg	1										<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	n-Nitrosomor	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	N-Nitrosopip	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	n-Nitrosopyr	mg/kg	1										<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Phenacetin	mg/kg	1										<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Safrole	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Golder Associates

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Minto Warehouse and Logistics Hub
Table 1B - Soil Chemsitry
MW1-5

Analyte Group	Analyte	Unit	EQL	NEPM 2013 0-1m	NEPM 2013 1-2m	NEPM 2013 2-4m	NEPM 2013 >4m	NEPM 2013 EILS-Commercial and industrial	*NEPM 2013 ESLs-Commercial and industrial, Fine Soil*	NEPM 2013 HIL-Commercial/industrial D Soil	NEPM 2013 Mgmt Limits Commercial and industrial, Fine Soil	Location ID	MW1	MW1	MW2	MW2	MW3	MW3	MW3	MW4	MW4	MW4	MW5	MW5
												Sample ID	MW1_01	MW1_08	MW2_01	MW2_08	MW3_02	MW3_08	MW3_09	MW4_01	MW4_02	MW4_06	MW5_02	MW5_08
												Depth Range	0.04-0.1	4.2-4.4	0.2-0.3	5.1-5.3	0.5-0.7	3.8-4	4-4.45	0.16-0.2	0.5-0.6	6.5-6.6	0.18-0.2	5.2-5.3
												Sample Date	7/06/2016	7/06/2016	8/06/2016	8/06/2016	7/06/2016	7/06/2016	7/06/2016	14/06/2016	14/06/2016	14/06/2016	7/06/2016	7/06/2016
Heavy Metals	Arsenic	mg/kg	3					**160**		3000			<3	6	<3	10	3	3	5	<3	3	3	<3	13
	Cadmium	mg/kg	0.3							900			0.5	<0.3	1.4	0.4	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.5
	Chromium	mg/kg	0.3										12	9	6.2	13	11	5.8	5.8	9.2	8.8	11	11	11
	Copper	mg/kg	0.5							240000			40	20	7	30	3.1	9.7	9.4	11	5	31	12	31
	Lead	mg/kg	1							1500			5	17	5	29	12	11	11	8	16	22	12	30
	Mercury	mg/kg	0.01							730			<0.01	<0.01	<0.01	0.04	<0.01	0.01	0.01	<0.01	<0.01	0.03	<0.01	0.02
	Nickel	mg/kg	0.5							6000			140	8.7	5.8	16	5.6	7.2	7.3	27	7.8	14	20	20
	Zinc	mg/kg	0.5							400000			51	37	25	68	24	17	20	27	29	55	29	77
Total Petroleum Hydrocarbons	TRH C37 - C40 Fraction	mg/kg	100										<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	TRH C6 - C9 Fraction	mg/kg	20										<20	<20	<20	<20	<20	35	22	<20	<20	<20	<20	<20
	TRH C10 - C14 Fraction	mg/kg	20										<20	<20	<20	<20	<20	<20	580	1100	<20	<20	<20	<20
	TRH C15 - C28 Fraction	mg/kg	45										<45	<45	<45	<45	<45	<45	<45	140	<45	<45	<45	<45
	TRH C29 - C36 Fraction	mg/kg	45										<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45	<45
	TRH+C10 - C36 (Sum of total) (Lab Reported)	mg/kg	110										<110	<110	<110	<110	<110	<110	580	1300	<110	<110	<110	<110
	TRH+C10 - C40 (Sum of total) (Lab Reported)	mg/kg	210										<210	<210	<210	<210	<210	<210	580	1300	<210	<210	<210	<210
	TRH C6 - C10 Fraction F1	mg/kg	25								800		<25	<25	<25	<25	<25	140	95	63	<25	<25	<25	<25
	TRH C6 - C10 Fraction Less BTEX F1	mg/kg	25						*215*				<25	<25	<25	<25	<25	140	95	63	<25	<25	<25	<25
	TRH >C10 - C16 Fraction F2	mg/kg	25								1000		<25	<25	<25	<25	<25	<25	570	1200	<25	<25	<25	<25
	TRH >C10 - C12 Fraction Less Naphthalene F2	mg/kg	25										<25	<25	<25	<25	<25	<25	560	1200	<25	<25	<25	<25
	TRH >C16 - C34 Fraction F3	mg/kg	90						*2500*		5000		<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90
	TRH >C34 - C40 Fraction F4	mg/kg	120						*6600*				<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120
MAH	1,2,4-trimethylbenzene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,3,5-Trimethylbenzene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzene	mg/kg	0.1	3|4	3|4|6	3|6|9	3|10		*95*				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Toluene	mg/kg	0.1						*135*				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Isopropylbenzene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	1.7	0.8	<0.1	<0.1	<0.1	<0.1	<0.1
	n-Butylbenzene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	4	2	0.3	<0.1	<0.1	<0.1	<0.1
	n-Propylbenzene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	3.8	1.9	0.1	<0.1	<0.1	<0.1	<0.1
	p-Isopropyltoluene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	sec-Butylbenzene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	3.4	1.7	0.3	<0.1	<0.1	<0.1	<0.1
	Styrene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	tert-Butylbenzene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1
	Ethylbenzene	mg/kg	0.1						*185*				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Xylenes (m & p)	mg/kg	0.2										<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Xylene (o)	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Xylenes (Sum of total) (Lab Reported)	mg/kg	0.3	230					*95*				<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
	Total BTEX	mg/kg	0.6										<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Organochlorine Pesticides	a-BHC	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Aldrin	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	b-BHC	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	cis-Chlordane	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	gamma-Chlordane	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	d-BHC	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	DDD	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	DDE	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	DDT	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dieldrin	mg/kg	0.2										<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Endosulfan I	mg/kg	0.2										<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Endosulfan II	mg/kg	0.2										<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Endosulfan sulphate	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Endrin	mg/kg	0.2							100			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Endrin ketone	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	g-BHC	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Heptachlor	mg/kg	0.1							50			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Heptachlor epoxide	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Methoxychlor	mg/kg	0.1							2500			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Halogenated Benzenes	1,2,3,4-Tetrachlorobenzene	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,2,3,5 & 1,2,4,5 Tetrachlorobenzene	mg/kg	1										<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1,2,3-Trichlorobenzene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,2,4-Trichlorobenzene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,2-Dichlorobenzene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,3-Dichlorobenzene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,4-Dichlorobenzene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2-Chlorotoluene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	4-Chlorotoluene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Bromobenzene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chlorobenzene	mg/kg	0.1										<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Hexachlorobenzene	mg/kg	0.1							80			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Pentachlorobenzene	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Other	Chloronaphthalenes (1- + 2-)	mg/kg	1										<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Di(2-ethylhexyl) adipate	mg/kg	0.5										<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Sample weight (dry)	g	1										463	-	622	-	-	-	-	-	-	-	717	-

1648232
Minto Warehouse and Logistics Hub
Table 1B - Soil Analytical Table
MW1-5

Location ID	MW1	MW1	MW2	MW2	MW3	MW3	MW3	MW4	MW4	MW4	MW5	MW5
Sample ID	MW1_01	MW1_08	MW2_01	MW2_08	MW3_02	MW3_08	MW3_09	MW4_01	MW4_02	MW4_06	MW5_02	MW5_08
Depth Range	0.04-0.1	4.2-4.4	0.2-0.3	5.1-5.3	0.5-0.7	3.8-4	4-4.45	0.16-0.2	0.5-0.6	6.5-6.6	0.18-0.2	5.2-5.3
Sample Date	7/06/2016	7/06/2016	8/06/2016	8/06/2016	7/06/2016	7/06/2016	7/06/2016	14/06/2016	14/06/2016	14/06/2016	7/06/2016	7/06/2016

Analyte Group	Analyte	Unit	EQL	NEPM 2013 0-1m	NEPM 2013 1-2m	NEPM 2013 2-4m	NEPM 2013 >4m	NEPM 2013 EILS-Commercial and industrial	*NEPM 2013 ESLs-Commercial and industrial, Fine Soil*	NEPM 2013 HIL-Commercial/industrial D Soil	NEPM 2013 Mgmt Limits Commercial and industrial, Fine Soil												
Solvents	Methyl Ethyl Ketone	mg/kg	10									<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	2-Hexanone	mg/kg	5									<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
	Methyl iso-butyl ketone	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Acetone	mg/kg	10									<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Acrylonitrile	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Isophorone	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Methyl-t-butyl ether	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	1.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Vinyl acetate	mg/kg	10									<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Volatile Organic Compounds	1,1,1,2-Tetrachloroethane	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,1,2,2-Tetrachloroethane	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,1,1-Trichloroethane	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,1,2-Trichloroethane	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,2,3-Trichloropropane	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,2-Dibromo-3-chloropropane	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,2-Dibromoethane	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,1-Dichloroethane	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,2-Dichloroethane	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,1-Dichloroethene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	cis-1,2-Dichloroethene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	trans-1,2-dichloroethene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,2-Dichloropropane	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,3-Dichloropropane	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,2-Dichloropropane	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,1-Dichloropropene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	cis-1,3-Dichloropropene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	trans-1,3-dichloropropene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2-Nitropropane	mg/kg	10									<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	cis-1,4-Dichloro-2-butene	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	trans-1,4-Dichloro-2-butene	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Allyl chloride	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Bromochloromethane	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Bromodichloromethane	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Bromoform	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Bromomethane	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Carbon disulfide	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Carbon tetrachloride	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chlorodibromomethane	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chloroethane	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Chloroform	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chloromethane	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Dibromomethane	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dichlorodifluoromethane	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Dichloromethane	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorobutadiene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Hexachloroethane	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Iodomethane	mg/kg	5									<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
	Pentachloroethane	mg/kg	0.5									<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Trichloroethene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Tetrachloroethene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Trichlorofluoromethane	mg/kg	1									<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Vinyl chloride	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PAH	Acenaphthene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1
	Acenaphthylene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1
	Anthracene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benz(a)anthracene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1						*1.4*			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene TEQ (lower bound)*	mg/kg	0.5							40		-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (medium bound)*	mg/kg	0.5							40		-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (upper bound)*	mg/kg	0.5							40		-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(b)&(k)fluoranthene	mg/kg	0.2									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Benzo(b)&(j)fluoranthene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(b+j) & Benzo(k)fluoranthene	mg/kg	1									-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(g,h,i)perylene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(k)fluoranthene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chrysene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dibenz(a,h)anthracene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluoranthene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluorene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Naphthalene	mg/kg	0.1						**370**			<0.1	<0.1	<0.1	<0.1	<0.1	8.2 - 13	2.1 - 5.1	<1.5 - 1	0.6 - 0.9	<0.1	<0.1	<0.1
	Phenanthrene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Pyrene	mg/kg	0.1									<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	PAH (Sum of Common 16 PAHs - Lab Reported)	mg/kg	0.5							4000		-	-	-	-	-	-	-	-	-	-	-	-

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Table 2 - Groundwater Analytical Table
MW1-5

							Location	MW1	MW2	MW3	MW4			MwW5
							Field ID	MW1	MW2	MW3	MW4	QC100	QC200	MW5
							Sample Date	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016
				NEPM 2013 Commercial/industrial GW HSL D Vapour Intrusion			NEPM 2013 GILs, Fresh Waters(A)							
Analyte Group	**Analyte**	**Unit**	**EQL**	**2-4m**	**4-8m**	**>8m**								
Amino Aliphatics	n-Nitrosodiethylamine	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	N-Nitrosodi-n-butylamine	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	N-Nitrosodi-n-propylamine	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	n-Nitrosomethylethylamine	mg/L	0.002					-	-	-	-	-	<0.002	-
Amino Aromatics	1-Naphthylamine	mg/L	0.002					<0.002	<0.002	<0.02	<0.002	<0.002	<0.002	<0.002
	2-Naphthylamine	mg/L	0.002					<0.002	<0.002	<0.02	<0.002	<0.002	-	<0.002
	Diphenylamine	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001
	n-Nitrosodiphenylamine & Diphenylamine	mg/L	0.004					-	-	-	-	-	<0.004	-
Anilines	2-Nitroaniline	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.004	<0.001
	3-Nitroaniline	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.004	<0.001
	4-Chloroaniline	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	4-Nitroaniline	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	2-methyl-5-nitroaniline	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	Aniline	mg/L	0.005				**0.05***	<0.005	<0.005	**<0.05**	<0.005	<0.005	<0.002	<0.005
	2-methylaniline	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001
E-Nitrobenzenes	Nitrobenzene	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	Pentachloronitrobenzene	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
Explosives	1,3,5-Trinitrobenzene	mg/L	0.002					-	-	-	-	-	<0.002	-
	1,3-Dinitrobenzene	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001
	2,4-Dinitrotoluene	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.004	<0.001
	2,6-Dinitrotoluene	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.004	<0.001
Herbicides	Pronamide	mg/L	0.002					-	-	-	-	-	<0.002	-
	Trifluralin	mg/L	0.0005				**0.005***	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
Organophosphorous Pesticides	Azinphos-methyl	mg/L	0.0002					<0.0002	<0.0002	<0.002	<0.0002	<0.0002	-	<0.0002
	Bromophos-ethyl	mg/L	0.0002					<0.0002	<0.0002	<0.002	<0.0002	<0.0002	-	<0.0002
	Carbophenothion	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Chlorfenvinphos	mg/L	0.002					-	-	-	-	-	<0.002	-
	Chlorfenvinphos E	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Chlorpyriphos	mg/L	0.0002				**0.002***	<0.0002	<0.0002	<0.002	<0.0002	<0.0002	<0.002	<0.0002
	Chlorpyriphos-methyl	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	cis-Chlorfenvinphos	mg/L	0.005					<0.005	<0.005	<0.05	<0.005	<0.005	-	<0.005
	Coumaphos	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Diazinon	mg/L	0.0005				**0.005***	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	Dichlorvos	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	Dimethoate	mg/L	0.0005				**0.005***	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	Disulfoton	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	EPN	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Ethion	mg/L	0.0002					<0.0002	<0.0002	<0.002	<0.0002	<0.0002	<0.002	<0.0002
	Ethoprop	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Fenamiphos	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Fenitrothion	mg/L	0.0002				**0.0002**	<0.0002	<0.0002	<0.002	<0.0002	<0.0002	-	<0.0002
	Fenthion	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	Malathion	mg/L	0.0002				**0.002***	<0.0002	<0.0002	<0.002	<0.0002	<0.0002	<0.002	<0.0002
	Methidathion	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Parathion-methyl	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Mevinphos	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001
	o,o,o-Triethylphosphorothioate	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Parathion	mg/L	0.0002				**0.0002***	<0.0002	<0.0002	<0.002	<0.0002	<0.0002	-	<0.0002
	Phorate	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Pirimphos-ethyl	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	Prothiofos	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	Ronnel	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Stirophos	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
PAH-Others	1-Methylnaphthalene	mg/L	0.0001					<0.0001	<0.0001	0.11	0.0085	0.01	-	<0.0001
	2-Chloronaphthalene	mg/L	0.002					-	-	-	-	-	<0.002	-
	2-Methylnaphthalene	mg/L	0.0001					<0.0001	<0.0001	0.13	0.0083	0.0089	0.022	<0.0001
	3-Methylcholanthrene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	7,12-Dimethylbenz(a)anthracene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005

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Table 2 - Groundwater Analytical Table
MW1-5

							Location	MW1	MW2	MW3	MW4			MwW5
							Field ID	MW1	MW2	MW3	MW4	QC100	QC200	MW5
							Sample Date	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016
				NEPM 2013 Commercial/industrial GW HSL D Vapour Intrusion			NEPM 2013 GILs, Fresh Waters(A)							
Analyte Group	**Analyte**	**Unit**	**EQL**	**2-4m**	**4-8m**	**>8m**								
Pesticides-Others	Carbaryl	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Carbazole	mg/L	0.002					-	-	-	-	-	<0.002	-
	Carbofuran	mg/L	0.0005				**0.0005***	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Chlorobenzilate	mg/L	0.002					-	-	-	-	-	<0.002	-
	Demeton-s-methyl	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Famphur	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Isodrin	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	-	<0.0001
	Mirex	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	-	<0.0001
	Pirimiphos-methyl	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Profenofos	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Sulfotepp	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Thionazin	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001
Phenolics	2,4-Dimethylphenol	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	2-Methylphenol	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	2-Nitrophenol	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	3- & 4- Methylphenol	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.004	<0.001
	4-Nitrophenol	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001
	Phenol	mg/L	0.0005				**0.32**	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
Phenolics-Halogenated	2,4,5-Trichlorophenol	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	2,4,6-Trichlorophenol	mg/L	0.0005				**0.005***	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	2,4-Dichlorophenol	mg/L	0.0005				**0.12**	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	2,6-Dichlorophenol	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	2,3,4,6 & 2,3,5,6-Tetrachlorophenol	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001
	2-Chlorophenol	mg/L	0.0005				**0.34**	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	4-Chloro-3-methylphenol	mg/L	0.002					<0.002	<0.002	<0.02	<0.002	<0.002	<0.002	<0.002
	Pentachlorophenol	mg/L	0.0005				**0.005***	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.004	<0.0005
Phthalates	Bis(2-ethylhexyl) phthalate	mg/L	0.05					<0.05	<0.05	<0.5	<0.05	<0.05	<0.01	<0.05
	Butylbenzyl phthalate	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	Diethyl phthalate	mg/L	0.005				**1**	<0.005	<0.005	<0.05	<0.005	<0.005	<0.002	<0.005
	Dimethyl phthalate	mg/L	0.001				**3.7**	<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	Di-n-butyl phthalate	mg/L	0.01				**0.1***	<0.01	<0.01	<0.1	<0.01	<0.01	<0.002	<0.01
	Di-n-octyl phthalate	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
Polychlorinated Biphenyls	PCB 101	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	-	<0.0001
	PCB 118	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	-	<0.0001
	PCB 138	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	-	<0.0001
	PCB 153	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	-	<0.0001
	PCB 180	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	-	<0.0001
	PCB 28	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	-	<0.0001
	PCB 52	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	-	<0.0001
SVOCs	1,4-Naphthoquinone	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001
	2-(Acetylamino) fluorene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	2-Picoline	mg/L	0.002					-	-	-	-	-	<0.002	-
	3,3-Dichlorobenzidine	mg/L	0.002					-	-	-	-	-	<0.002	-
	4-(Dimethylamino) azobenzene	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	4-Aminobiphenyl	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	4-Bromophenyl phenyl ether	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	4-Chlorophenyl phenyl ether	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	4-Nitroquinoline-n-oxide	mg/L	0.002					-	-	-	-	-	<0.002	-
	Acetophenone	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	Azobenzene	mg/L	0.002					-	-	-	-	-	<0.002	-
	Benzyl alcohol	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001
	Bis(2-chloroethoxy) methane	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	Bis(2-chloroethyl) ether	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	Bis(2-chloroisopropyl) ether	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001
	Dibenzofuran	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	Ethylmethanesulfonate	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001
	Hexachlorocyclopentadiene	mg/L	0.002					<0.002	<0.002	<0.02	<0.002	<0.002	<0.01	<0.002
	Hexachloropropene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	cis-Isosafrole	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001
	trans-Isosafrole	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001
	Methapyrilene	mg/L	0.002					-	-	-	-	-	<0.002	-
	Methyl methanesulfonate	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001
	n-Nitrosomorpholine	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	N-Nitrosopiperidine	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	n-Nitrosopyrrolidine	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.004	<0.001
	Phenacetin	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	Safrole	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001

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Table 2 - Groundwater Analytical Table
MW1-5

							Location	Mw1	MW2	MW3	MW4			MwW5
							Field ID	MW1	MW2	MW3	MW4	QC100	QC200	MW5
							Sample Date	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016
				NEPM 2013 Commercial/industrial GW HSL D Vapour Intrusion			NEPM 2013 GILs, Fresh Waters(A)							
Analyte Group	**Analyte**	**Unit**	**EQL**	**2-4m**	**4-8m**	**>8m**								
Heavy Metals	Arsenic (Filtered)	mg/L	0.001					<0.001	<0.001	0.002	0.001	0.001	0.001	<0.001
	Cadmium (Filtered)	mg/L	0.0001				**0.0002**	<0.0001	**0.0002**	<0.0001	<0.0001	<0.0001	<0.0001	**0.0003**
	Chromium (Filtered)	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Copper (Filtered)	mg/L	0.001				**0.0014**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Lead (Filtered)	mg/L	0.001				**0.0034**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Mercury (Filtered)	mg/L	0.0001				**0.0001***	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Nickel (Filtered)	mg/L	0.001				**0.011**	0.003	0.006	0.002	**0.014**	**0.014**	**0.016**	**0.012**
	Zinc (Filtered)	mg/L	0.005				**0.008**	0.007	**0.011**	**0.008**	**0.021**	**0.02**	**0.024**	**0.016**
Total Petroleum Hydrocarbons	TRH C37 - C40 Fraction	mg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2
	TRH C6 - C9 Fraction	mg/L	0.04					<0.04	<0.04	<0.4	<0.04	<0.04	0.08	<0.04
	TRH C10 - C14 Fraction	mg/L	0.05					<0.05	<0.05	8.4	<0.05	0.23	0.31	<0.05
	TRH C15 - C28 Fraction	mg/L	0.2					<0.2	<0.2	1.5	<0.2	<0.2	<0.1	<0.2
	TRH C29 - C36 Fraction	mg/L	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.2
	TRH+C10 - C36 (Sum of total) (Lab Reported)	mg/L	0.45					<0.45	<0.45	9.9	<0.45	<0.45	0.31	<0.45
	TRH+C10 - C40 (Sum of total) (Lab Reported)	mg/L	0.65					<0.65	<0.65	9.9	<0.65	<0.65	0.3	<0.65
	TRH C6 - C10 Fraction F1	mg/L	0.05					<0.05	<0.05	<0.5	<0.05	0.051	0.11	<0.05
	TRH C6 - C10 Fraction Less BTEX F1	mg/L	0.05	6	6	7		<0.05	<0.05	<0.5	<0.05	0.05	0.11	<0.05
	TRH >C10 - C16 Fraction F2	mg/L	0.06					<0.06	<0.06	8.8	<0.06	0.26	0.3	<0.06
	TRH >C10 - C12 Fraction Less Naphthalene F2	mg/L	0.1					-	-	-	-	-	0.26	-
	TRH >C16 - C34 Fraction F3	mg/L	0.5					<0.5	<0.5	0.92	<0.5	<0.5	<0.1	<0.5
	TRH >C34 - C40 Fraction F4	mg/L	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5
MAH	1,2,4-trimethylbenzene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	1,3,5-Trimethylbenzene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	Benzene	mg/L	0.0005	5|30	5|30	5|30|35	**0.95**	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.001	<0.0005
	Toluene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	Isopropylbenzene	mg/L	0.0005					<0.0005	<0.0005	0.026	0.0049	0.0051	0.005	<0.0005
	n-Butylbenzene	mg/L	0.0005					<0.0005	<0.0005	0.015	0.0013	0.0012	<0.005	<0.0005
	n-Propylbenzene	mg/L	0.0005					<0.0005	<0.0005	0.041	0.0065	0.0066	0.007	<0.0005
	p-Isopropyltoluene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	sec-Butylbenzene	mg/L	0.0005					<0.0005	<0.0005	0.021	0.0028	0.003	<0.005	<0.0005
	Styrene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	tert-Butylbenzene	mg/L	0.0005					<0.0005	<0.0005	<0.005	0.0007	0.0007	<0.005	<0.0005
	Ethylbenzene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	Xylenes (m & p)	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	Xylene (o)	mg/L	0.0005				**0.35**	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	Xylenes (Sum of total) (Lab Reported)	mg/L	0.0015					<0.0015	<0.0015	<0.015	<0.0015	<0.0015	<0.002	<0.0015
	Total BTEX	mg/L	0.003					<0.003	<0.003	<0.03	<0.003	<0.003	<0.001	<0.003
Organochlorine Pesticides	a-BHC	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Aldrin	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Aldrin & Dieldrin (Sum of total) (Lab Reported)	mg/L	0.004					-	-	-	-	-	<0.004	-
	b-BHC	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	cis-Chlordane	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	-	<0.0001
	gamma-Chlordane	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	-	<0.0001
	d-BHC	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	DDD	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	DDE	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	DDT	mg/L	0.0001				**0.0001***	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.004	<0.0001
	DDT+DDE+DDD (Sum of total) (Lab Reported)	mg/L	0.004					-	-	-	-	-	<0.004	-
	Dieldrin	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Endosulfan I	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Endosulfan II	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Endosulfan sulphate	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Endrin	mg/L	0.0001				**0.0001***	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Endrin ketone	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	-	<0.0001
	g-BHC	mg/L	0.0001				**0.002***	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Heptachlor	mg/L	0.0001				**0.001***	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Heptachlor epoxide	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Methoxychlor	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	-	<0.0001
Halogenated Benzenes	1,2,3,4-Tetrachlorobenzene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	1,2,3,5 & 1,2,4,5 Tetrachlorobenzene	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001
	1,2,3-Trichlorobenzene	mg/L	0.0005				**0.005***	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	1,2,4-Trichlorobenzene	mg/L	0.0005				**0.085**	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	1,2-Dichlorobenzene	mg/L	0.0005				**0.16**	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	1,3-Dichlorobenzene	mg/L	0.0005				**0.26**	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	1,4-Dichlorobenzene	mg/L	0.0003				**0.06**	<0.0003	<0.0003	<0.003	<0.0003	<0.0003	<0.002	<0.0003
	2-Chlorotoluene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	4-Chlorotoluene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	Bromobenzene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	Chlorobenzene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	Hexachlorobenzene	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.004	<0.0001
	Pentachlorobenzene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
Other	Chloronaphthalenes (1- + 2-)	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001
	Di(2-ethylhexyl) adipate	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	-	<0.001

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Table 2 - Groundwater Analytical Table
MW1-5

				NEPM 2013										
Location								MW1	MW2	MW3	MW4			MwW5
Field ID								MW1	MW2	MW3	MW4	QC100	QC200	MW5
Sample Date								21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016
Analyte Group	**Analyte**	**Unit**	**EQL**	**2-4m**	**4-8m**	**>8m**	**NEPM 2013 GILs, Fresh Waters(A)**							
Volatile Organic Compounds	1,1,1,2-Tetrachloroethane	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	1,1,2,2-Tetrachloroethane	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	1,1,1-Trichloroethane	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	1,1,2-Trichloroethane	mg/L	0.0005				**6.5**	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	1,2,3-Trichloropropane	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	1,2-Dibromo-3-chloropropane	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	1,2-Dibromoethane	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	1,1-Dichloroethane	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	1,2-Dichloroethane	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	1,1-Dichloroethene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	cis-1,2-Dichloroethene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	trans-1,2-dichloroethene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	1,2-Dichloropropane	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	1,3-Dichloropropane	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	2,2-Dichloropropane	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	1,1-Dichloropropene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	cis-1,3-Dichloropropene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	trans-1,3-dichloropropene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	2-Nitropropane	mg/L	0.1					<0.1	<0.1	<1	<0.1	<0.1	-	<0.1
	cis-1,4-Dichloro-2-butene	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.001
	trans-1,4-Dichloro-2-butene	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.005	<0.001
	Allyl chloride	mg/L	0.002					<0.002	<0.002	<0.02	<0.002	<0.002	-	<0.002
	Bromochloromethane	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Bromodichloromethane	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	Bromoform	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	Bromomethane	mg/L	0.01					<0.01	<0.01	<0.1	<0.01	<0.01	<0.05	<0.01
	Carbon disulfide	mg/L	0.002					<0.002	<0.002	<0.02	<0.002	<0.002	<0.005	<0.002
	Carbon tetrachloride	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	Chlorodibromomethane	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	Chloroethane	mg/L	0.005					<0.005	<0.005	<0.05	<0.005	<0.005	<0.05	<0.005
	Chloroform	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	Chloromethane	mg/L	0.005					<0.005	<0.005	<0.05	<0.005	<0.005	<0.05	<0.005
	Dibromomethane	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	Dichlorodifluoromethane	mg/L	0.005					<0.005	<0.005	<0.05	<0.005	<0.005	<0.05	<0.005
	Dichloromethane	mg/L	0.005					<0.005	<0.005	<0.05	<0.005	<0.005	-	<0.005
	Hexachlorobutadiene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	Hexachloroethane	mg/L	0.0005				**0.29**	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.002	<0.0005
	Iodomethane	mg/L	0.005					<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005
	Pentachloroethane	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	Trichloroethene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	Tetrachloroethene	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.005	<0.0005
	Trichlorofluoromethane	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.05	<0.001
	Vinyl chloride	mg/L	0.0003					<0.0003	<0.0003	<0.003	<0.0003	<0.0003	<0.05	<0.0003
PAH	Acenaphthene	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0002	<0.0003	<0.002	<0.0001
	Acenaphthylene	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Anthracene	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Benz(a)anthracene	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Benzo(a)pyrene	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Benzo(a)pyrene TEQ (lower bound)*	mg/L	0.002					-	-	-	-	-	<0.002	-
	Benzo(b)&(k)fluoranthene	mg/L	0.0002					<0.0002	<0.0002	<0.002	<0.0002	<0.0002	-	<0.0002
	Benzo(b)&(j)fluoranthene	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	-	<0.0001
	Benzo(b+j) & Benzo(k)fluoranthene	mg/L	0.004					-	-	-	-	-	<0.004	-
	Benzo(g,h,i)perylene	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Benzo(k)fluoranthene	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	-	<0.0001
	Chrysene	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Dibenz(a,h)anthracene	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Fluoranthene	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Fluorene	mg/L	0.0001					<0.0001	<0.0001	0.0017	<0.0002	<0.0002	<0.002	<0.0001
	Indeno(1,2,3-c,d)pyrene	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Naphthalene	mg/L	0.0001				**0.016**	<0.0001	<0.0001	**0.2**	**0.017**	**0.019**	**0.022**	<0.0001
	Phenanthrene	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	Pyrene	mg/L	0.0001					<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.002	<0.0001
	PAH (Sum of Common 16 PAHs - Lab Reported)	mg/L	0.002					-	-	-	-	-	0.022	-
Solvents	Methyl Ethyl Ketone	mg/L	0.01					<0.01	<0.01	<0.1	<0.01	<0.01	<0.05	<0.01
	2-Hexanone	mg/L	0.005					<0.005	<0.005	<0.05	<0.005	<0.005	<0.05	<0.005
	Methyl iso-butyl ketone	mg/L	0.005					<0.005	<0.005	<0.05	<0.005	<0.005	<0.05	<0.005
	Acetone	mg/L	0.01					<0.01	<0.01	<0.1	<0.01	<0.01	-	<0.01
	Acrylonitrile	mg/L	0.0005					<0.0005	<0.0005	<0.005	<0.0005	<0.0005	-	<0.0005
	Isophorone	mg/L	0.001					<0.001	<0.001	<0.01	<0.001	<0.001	<0.002	<0.001
	Methyl-t-butyl ether	mg/L	0.002					<0.002	<0.002	<0.02	<0.002	<0.002	-	<0.002
	Vinyl acetate	mg/L	0.01					<0.01	<0.01	<1	<0.01	<0.01	<0.05	<0.01

Created by: NS
Checked by: TA

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Table 3 - Groundwater Monitoring Well Water Levels

Well Location	Date of Gauging	Gauged Well Depth (mbtoc)	Easting	Northing	TOC (mAHD)	Ground Level (mAHD)	SWL (mbtoc)	Groundwater Elevation (mAHD)
MW1	21/06/2016	5.2	300026.627	6231021.233	48.225	48.325	3.51	44.715
MW2	21/06/2016	6.55	300069.071	6231104.777	48.109	48.209	3.37	44.739
MW3	21/06/2016	5.5	299969.236	6231095.727	48.007	48.127	3.35	44.657
MW4	21/06/2016	7.0	299966.691	6231128.474	47.736	47.836	3.17	44.566
MW5	21/06/2016	6.5	299986.837	6231132.890	48.036	48.138	3.36	44.676

Notes:
mbtoc = metres below top of casing
TOC = Top of Casing
SWL= Standing Water Level
mAHD= metres in Australian Height Datum

NA = Not Available
ND = Not Detected

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Table 4 - Groundwater Field Parameters

Location	Date Purged	Total Volume Purged (L)	DO (ppm)	EC (µS/cm)	TDS (mg/L)	pH	Er (mV)	Eh* (mV)
MW1	21/06/2016	3.0	1.37	2700	1755	6.39	95	294
MW2	21/06/2016	4.0	0.27	16332	10616	6.52	90	289
MW3	21/06/2016	3.0	0.02	1510	982	6.94	-123	76
MW4	21/06/2016	4.0	0.15	9550	6208	6.41	-15	184
MW5	21/06/2016	4.0	1.19	1087	707	6.31	117	316

Notes:
PID = Photo ionization Detector
PSH - Phase Separated Hydrocabon
L = Litre
DO = Dissolved Oxygen
EC = Electrical Conductivity
µS/cm = Microsiemens per centimetre
TDS = Total Dissolved Solids (estimated based on EC value multiplied by 0.65)
*Eh = Redox Potential (measured with a platinum electrode and silver/silver chloride reference electrode (Er) and converted to Eh by Eh = Er + 199 mV)
mV = Millivolts
Temp = Temperature
^{o}C = Degree in Celsius

APPENDIX C

QAQC & Data Validation

DATA VALIDATION SUMMARY SHEET (Sydney)

Project Name:	**Tactical GI Contam - Minto**	**Project Number:**	**1648232**
Primary Laboratory:	**SGS**	**Work order Number:**	**SE153857**
Secondary Laboratory:	**ALS**	**Work order Number:**	**ES1613614**
Date Sampled:	**21/06/2016**	**Sample Medium:**	**Water**

Sample Information

Number of Primary Samples:	**5**	**Number of Triplicate Samples:**	**1**
Number of Duplicate Samples:	**1**	**Number of Other QAQC Samples:**	**2**

Documentation and Sample Handling Information

	Y/N	Comments
COC completed properly?	Yes	COC delivered electronically by Golder. Signed and stamped by laboratory personnel on receipt.
All requested analysis completed?	Yes	All requested analyses on the COC performed by SGS & ALS.
Samples received intact and chilled?	Yes	SGS: 1.2'C, in good order, with ice. ALS: 14.5'C, ice bricks present, security seal intact.
Samples analysed within appropriate holding times?	Yes	All other samples were analysed within the appropriate holding time (SGS & ALS).
Sample volumes sufficient for QC analysis?	No	ALS insufficient volume for SVOC and TRH (Semi-volatile fraction) for laboratory duplicates and matrix spikes QAQC analysis. Sufficient sample volume provided for all other internal laboratory QAQC tests (SGS & ALS). See overall comments.
Are there non-NATA accredited methods used?	Yes	SGS is not NATA accredited for the reporting of EPN, Prothiophos (Tokuthion), andTetrachlorvinphos (Stirophos). SGS and ALS are NATA accredited for all other methods used in this batch.
Chromatograms supplied as appropriate?	N/A	N/A.
Laboratory reports signed by authorised personnel?	Yes	All reports signed.

QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)

Type	Sample ID	Comments
MB	Method Blank	All results are below the LOR for SGS & ALS
FB	FB100	All results are below the LOR.
RB	RB100	All results are below the LOR.

Trip Spike Information

Analyte	Control Spike Concentrations	Trip Spike Concentration	% Recovery	Comments
No TS was used in this analysis.				

Laboratory Control Spike (LCS) Analyses

Analyte Group	Comments
Phenolic Compounds	ALS: The LCS recovery for 2.6-Dichlorophenol (60%) was not with the laboratory based data quality objectives (62-108%).
PAHs	ALS: The LCS recovery for Anthracene (65.6%) was not with the laboratory based data quality objectives (66-108%).
Nitroaromatics and Ketones	ALS: The LCS recovery for Acetophenone (67.9%), Nitrobenzene (66.2%) and 4-Aminobiphenyl (28.4%) was not with the laboratory based data quality objectives (68-112%, 68-112% and 60-112% respectively).
Haloethers	ALS: The LCS recovery for Bis(2-chloroethyl) ether (60.3%) was not with the laboratory based data quality objectives (69-112%).
	All SGS and other ALS laboratory control spike recoveries are within the laboratory based data quality objectives.

Matrix Spike (MS) Analyses

Analyte Group	Comments
-	All matrix spike recoveries are within the laboratory based data quality objectives (SGS & ALS).

Laboratory Duplicates (LD) Analyses

Analyte Group	Sample ID	Comments
-	-	All laboratory duplicate RPDs are within the laboratory based data quality objectives (SGS & ALS).

Field Duplicates (FD) Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
	MW4	QC100	All FD RPDs are within the data quality objective.

Field Triplicates (FT) Analyses

Analyte Group	Primary ID	Triplicate ID	Comments
	MW4	QC200	FT RPD for 2-methylnaphthalene (90%) was outside of the DQOs. See overall comments.
	MW4	QC200	All other FT RPDs are within the data quality objective.

Surrogate Compound Monitoring Analyses

Analyte Group	Analyte(s)	Comments
All	-	All surrogate recoveries are within the laboratory based data quality objectives (SGS & ALS).

Overall Comments

As SGS stated: 'VOC/VPH/8270 - The Limit of Reporting (LOR) has been raised due to interferences from the sample matrix.'

SGS: LCS Recoveries for Phenols, PAHs, Nitroaromatics and Ketones and Haloethers were outside of the DQO, however, the exceedance was marginal and all other phenols, PAHs, nitro-aromatics, haloethers were within DQOs.

Field triplicate RPDs: FT RPDs for 2-methylnaphthalene was outside of the DQO. This is expected to be the result of differences in laboratory handling, extraction & analytical techniques. As a conservative measure, the highest concentrations will be adopted for interpretive purposes.

This batch has been validated and is considered suitable for environmental interpretive use.

Note: Data validation assesses each analyte in terms of all the data validation variables and only the exceedances and outliers are reported in this form.

*When concentrations are less than the LOR for both primary and duplicate/triplicate results, no RPDs are calculated

Performed By:	**Natalie Sandy**	**Checked By:**	**Phillippe Koenig**
Date:	**30/06/2016**	**Date:**	**8/07/2016**

Project: Tactical GI Contam - Minto
Duplicate Analysis RPDs
Project No. : 1648232
Batch/es: SE153857 & ES1613614

Sample ID	MW4	QC100	QC200
Sample Type	Primary	Field Duplicate	Field Triplicate
Date Sampled	21/06/2016	21/06/2016	21/06/2016

Analyte	Units	LOR				RPDs	
						Primary vs Duplicate	Primary vs Inter Duplicate
n-Nitrosodiethylamine	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
N-Nitrosodi-n-butylamine	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
N-Nitrosodi-n-propylamine	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
1-Naphthylamine	mg/l	0.002	<0.002	<0.002	<0.002	ND	ND
2-Naphthylamine	mg/l	0.002	<0.002	<0.002	-	ND	-
Diphenylamine	mg/l	0.001	<0.001	<0.001	-	ND	-
2-Nitroaniline	mg/l	0.001 : 0.004 (Interlab)	<0.001	<0.001	<0.004	ND	ND
3-Nitroaniline	mg/l	0.001 : 0.004 (Interlab)	<0.001	<0.001	<0.004	ND	ND
4-Chloroaniline	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
4-Nitroaniline	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
2-methyl-5-nitroaniline	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
Aniline	mg/l	0.005 : 0.002 (Interlab)	<0.005	<0.005	<0.002	ND	ND
2-methylaniline	mg/l	0.001	<0.001	<0.001	-	ND	-
Nitrobenzene	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
Pentachloronitrobenzene	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
1,3-Dinitrobenzene	mg/l	0.001	<0.001	<0.001	-	ND	-
2,4-Dinitrotoluene	mg/l	0.001 : 0.004 (Interlab)	<0.001	<0.001	<0.004	ND	ND
2,6-Dinitrotoluene	mg/l	0.001 : 0.004 (Interlab)	<0.001	<0.001	<0.004	ND	ND
Trifluralin	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Azinphos-methyl	mg/l	0.0002	<0.0002	<0.0002	-	ND	-
Bromophos-ethyl	mg/l	0.0002	<0.0002	<0.0002	-	ND	-
Carbophenothion	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Chlorfenvinphos E	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Chlorpyriphos	mg/l	0.0002 : 0.002 (Interlab)	<0.0002	<0.0002	<0.002	ND	ND
Chlorpyriphos-methyl	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
cis-Chlorfenvinphos	mg/l	0.005	<0.005	<0.005	-	ND	-
Coumaphos	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Diazinon	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
Dichlorvos	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
Dimethoate	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
Disulfoton	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
EPN	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Ethion	mg/l	0.0002 : 0.002 (Interlab)	<0.0002	<0.0002	<0.002	ND	ND
Ethoprop	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Fenamiphos	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Fenitrothion	mg/l	0.0002	<0.0002	<0.0002	-	ND	-
Fenthion	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
Malathion	mg/l	0.0002 : 0.002 (Interlab)	<0.0002	<0.0002	<0.002	ND	ND
Methidathion	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Parathion-methyl	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Mevinphos	mg/l	0.001	<0.001	<0.001	-	ND	-
o,o,o-Triethylphosphorothioate	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Parathion	mg/l	0.0002	<0.0002	<0.0002	-	ND	-
Phorate	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Pirimphos-ethyl	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
Prothiofos	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
Ronnel	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Stirophos	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
1-Methylnaphthalene	mg/l	0.0001	0.0085	0.01	-	16.22%	-
2-Methylnaphthalene	mg/l	0.0001 : 0.002 (Interlab)	0.0083	0.0089	**0.022**	6.98%	**90.43%**
3-Methylcholanthrene	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
7,12-Dimethylbenz(a)anthracene	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
Carbaryl	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Carbofuran	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Demeton-s-methyl	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Famphur	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Isodrin	mg/l	0.0001	<0.0001	<0.0001	-	ND	-
Mirex	mg/l	0.0001	<0.0001	<0.0001	-	ND	-
Pirimiphos-methyl	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Profenofos	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Sulfotepp	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Thionazin	mg/l	0.001	<0.001	<0.001	-	ND	-
2,4-Dimethylphenol	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
2-Methylphenol	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
2-Nitrophenol	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
3- & 4- Methylphenol	mg/l	0.001 : 0.004 (Interlab)	<0.001	<0.001	<0.004	ND	ND
4-Nitrophenol	mg/l	0.001	<0.001	<0.001	-	ND	-
Phenol	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
2,4,5-Trichlorophenol	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
2,4,6-Trichlorophenol	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
2,4-Dichlorophenol	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
2,6-Dichlorophenol	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
2,3,4,6 & 2,3,5,6-Tetrachlorophenol	mg/l	0.001	<0.001	<0.001	-	ND	-
2-Chlorophenol	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
4-Chloro-3-methylphenol	mg/l	0.002	<0.002	<0.002	<0.002	ND	ND
Pentachlorophenol	mg/l	0.0005 : 0.004 (Interlab)	<0.0005	<0.0005	<0.004	ND	ND
Bis(2-ethylhexyl) phthalate	mg/l	0.05 : 0.01 (Interlab)	<0.05	<0.05	<0.01	ND	ND
Butylbenzyl phthalate	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
Diethyl phthalate	mg/l	0.005 : 0.002 (Interlab)	<0.005	<0.005	<0.002	ND	ND
Dimethyl phthalate	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
Di-n-butyl phthalate	mg/l	0.01 : 0.002 (Interlab)	<0.01	<0.01	<0.002	ND	ND
Di-n-octyl phthalate	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
PCB 101	mg/l	0.0001	<0.0001	<0.0001	-	ND	-
PCB 118	mg/l	0.0001	<0.0001	<0.0001	-	ND	-
PCB 138	mg/l	0.0001	<0.0001	<0.0001	-	ND	-
PCB 153	mg/l	0.0001	<0.0001	<0.0001	-	ND	-
PCB 180	mg/l	0.0001	<0.0001	<0.0001	-	ND	-
PCB 28	mg/l	0.0001	<0.0001	<0.0001	-	ND	-
PCB 52	mg/l	0.0001	<0.0001	<0.0001	-	ND	-
1,4-Naphthoquinone	mg/l	0.001	<0.001	<0.001	-	ND	-
2-(Acetylamino) fluorene	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
4-(Dimethylamino) azobenzene	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
4-Aminobiphenyl	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
4-Bromophenyl phenyl ether	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
4-Chlorophenyl phenyl ether	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
Acetophenone	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
Benzyl alcohol	mg/l	0.001	<0.001	<0.001	-	ND	-
Bis(2-chloroethoxy) methane	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
Bis(2-chloroethyl) ether	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
Bis(2-chloroisopropyl) ether	mg/l	0.001	<0.001	<0.001	-	ND	-
Dibenzofuran	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
Ethylmethanesulfonate	mg/l	0.001	<0.001	<0.001	-	ND	-
Hexachlorocyclopentadiene	mg/l	0.002 : 0.01 (Interlab)	<0.002	<0.002	<0.01	ND	ND
Hexachloropropene	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
cis-Isosafrole	mg/l	0.001	<0.001	<0.001	-	ND	-

trans-Isosafrole	mg/l	0.001	<0.001	<0.001	-	ND	-
Methyl methanesulfonate	mg/l	0.001	<0.001	<0.001	-	ND	-
n-Nitrosomorpholine	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
N-Nitrosopiperidine	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
n-Nitrosopyrrolidine	mg/l	0.001 : 0.004 (Interlab)	<0.001	<0.001	<0.004	ND	ND
Phenacetin	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
Safrole	mg/l	0.001	<0.001	<0.001	-	ND	-
Arsenic (Filtered)	mg/l	0.001	0.001	0.001	0.001	0.00%	0.00%
Cadmium (Filtered)	mg/l	0.0001	<0.0001	<0.0001	<0.0001	ND	ND
Chromium (Filtered)	mg/l	0.001	<0.001	<0.001	<0.001	ND	ND
Copper (Filtered)	mg/l	0.001	<0.001	<0.001	<0.001	ND	ND
Lead (Filtered)	mg/l	0.001	<0.001	<0.001	<0.001	ND	ND
Mercury (Filtered)	mg/l	0.0001	<0.0001	<0.0001	<0.0001	ND	ND
Nickel (Filtered)	mg/l	0.001	0.014	0.014	0.016	0.00%	13.33%
Zinc (Filtered)	mg/l	0.005	0.021	0.02	0.024	4.88%	13.33%
TRH C37 - C40 Fraction	mg/l	0.2	<0.2	<0.2	-	ND	-
TRH C6 - C9 Fraction	mg/l	0.04 : 0.02 (Interlab)	<0.04	<0.04	**0.08**	ND	ND
TRH C10 - C14 Fraction	mg/l	0.05	**<0.05**	**0.23**	**0.31**	ND	ND
TRH C15 - C28 Fraction	mg/l	0.2 : 0.1 (Interlab)	<0.2	<0.2	<0.1	ND	ND
TRH C29 - C36 Fraction	mg/l	0.2 : 0.05 (Interlab)	<0.2	<0.2	<0.05	ND	ND
TRH+C10 - C36 (Sum of total) (Lab Reported)	mg/l	0.45 : 0.05 (Interlab)	<0.45	<0.45	0.31	ND	ND
TRH+C10 - C40 (Sum of total) (Lab Reported)	mg/l	0.65 : 0.1 (Interlab)	<0.65	<0.65	0.3	ND	ND
TRH C6 - C10 Fraction F1	mg/l	0.05 : 0.02 (Interlab)	<0.05	0.051	**0.11**	ND	ND
TRH C6 - C10 Fraction Less BTEX F1	mg/l	0.05 : 0.02 (Interlab)	<0.05	0.05	**0.11**	ND	ND
TRH >C10 - C16 Fraction F2	mg/l	0.06 : 0.1 (Interlab)	**<0.06**	**0.26**	**0.3**	ND	ND
TRH >C16 - C34 Fraction F3	mg/l	0.5 : 0.1 (Interlab)	<0.5	<0.5	<0.1	ND	ND
TRH >C34 - C40 Fraction F4	mg/l	0.5 : 0.1 (Interlab)	<0.5	<0.5	<0.1	ND	ND
1,2,4-trimethylbenzene	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
1,3,5-Trimethylbenzene	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
Benzene	mg/l	0.0005 : 0.001 (Interlab)	<0.0005	<0.0005	<0.001	ND	ND
Benzene	mg/l	0.0005 : 0.001 (Interlab)	<0.0005	<0.0005	<0.001	ND	ND
Toluene	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
Isopropylbenzene	mg/l	0.0005 : 0.005 (Interlab)	**0.0049**	**0.0051**	**0.005**	4.00%	2.02%
n-Butylbenzene	mg/l	0.0005 : 0.005 (Interlab)	**0.0013**	**0.0012**	<0.005	8.00%	ND
n-Propylbenzene	mg/l	0.0005 : 0.005 (Interlab)	**0.0065**	**0.0066**	0.007	1.53%	7.41%
p-Isopropyltoluene	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
sec-Butylbenzene	mg/l	0.0005 : 0.005 (Interlab)	**0.0028**	**0.003**	<0.005	6.90%	ND
Styrene	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
tert-Butylbenzene	mg/l	0.0005 : 0.005 (Interlab)	**0.0007**	**0.0007**	<0.005	0.00%	ND
Ethylbenzene	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
Xylenes (m & p)	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
Xylene (o)	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	
Xylenes (Sum of total) (Lab Reported)	mg/l	0.0015 : 0.002 (Interlab)	<0.0015	<0.0015	<0.002	ND	ND
Total BTEX	mg/l	0.003 : 0.001 (Interlab)	<0.003	<0.003	<0.001	ND	ND
a-BHC	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Aldrin	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
b-BHC	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	
cis-Chlordane	mg/l	0.0001	<0.0001	<0.0001	-	ND	-
gamma-Chlordane	mg/l	0.0001	<0.0001	<0.0001	-	ND	-
d-BHC	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
DDD	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
DDE	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
DDT	mg/l	0.0001 : 0.004 (Interlab)	<0.0001	<0.0001	<0.004	ND	ND
Dieldrin	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Endosulfan I	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Endosulfan II	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Endosulfan sulphate	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Endrin	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Endrin ketone	mg/l	0.0001	<0.0001	<0.0001	-	ND	-
g-BHC	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Heptachlor	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Heptachlor epoxide	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Methoxychlor	mg/l	0.0001	<0.0001	<0.0001	-	ND	-
1,2,3,4-Tetrachlorobenzene	mg/l	0.0005	<0.0005	<0.0005	-	ND	
1,2,3,5 & 1,2,4,5 Tetrachlorobenzene	mg/l	0.001	<0.001	<0.001	-	ND	-
1,2,3-Trichlorobenzene	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
1,2,4-Trichlorobenzene	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
1,2,4-Trichlorobenzene	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
1,2-Dichlorobenzene	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
1,2-Dichlorobenzene	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
1,3-Dichlorobenzene	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
1,3-Dichlorobenzene	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
1,4-Dichlorobenzene	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
1,4-Dichlorobenzene	mg/l	0.0003 : 0.002 (Interlab)	<0.0003	<0.0003	<0.002	ND	ND
2-Chlorotoluene	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
4-Chlorotoluene	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
Bromobenzene	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
Chlorobenzene	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
Hexachlorobenzene	mg/l	0.0001 : 0.004 (Interlab)	<0.0001	<0.0001	<0.004	ND	ND
Pentachlorobenzene	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
Chloronaphthalenes (1- + 2-)	mg/l	0.001	<0.001	<0.001	-	ND	-
Di(2-ethylhexyl) adipate	mg/l	0.001	<0.001	<0.001	-		
1,1,1,2-Tetrachloroethane	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
1,1,2,2-Tetrachloroethane	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
1,1,1-Trichloroethane	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
1,1,2-Trichloroethane	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
1,2,3-Trichloropropane	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
1,2-Dibromo-3-chloropropane	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
1,2-Dibromoethane	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
1,1-Dichloroethane	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
1,2-Dichloroethane	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
1,1-Dichloroethene	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
cis-1,2-Dichloroethene	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
trans-1,2-dichloroethene	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
1,2-Dichloropropane	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
1,3-Dichloropropane	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
2,2-Dichloropropane	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
1,1-Dichloropropene	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
cis-1,3-Dichloropropene	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
trans-1,3-dichloropropene	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
2-Nitropropane	mg/l	0.1	<0.1	<0.1	-	ND	-
cis-1,4-Dichloro-2-butene	mg/l	0.001 : 0.005 (Interlab)	<0.001	<0.001	<0.005	ND	ND
trans-1,4-Dichloro-2-butene	mg/l	0.001 : 0.005 (Interlab)	<0.001	<0.001	<0.005	ND	ND
Allyl chloride	mg/l	0.002	<0.002	<0.002	-	ND	-
Bromochloromethane	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Bromodichloromethane	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
Bromoform	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
Bromomethane	mg/l	0.01 : 0.05 (Interlab)	<0.01	<0.01	<0.05	ND	ND
Carbon disulfide	mg/l	0.002 : 0.005 (Interlab)	<0.002	<0.002	<0.005		
Carbon tetrachloride	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
Chlorodibromomethane	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
Chloroethane	mg/l	0.005 : 0.05 (Interlab)	<0.005	<0.005	<0.05	ND	ND

Chloroform	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
Chloromethane	mg/l	0.005 : 0.05 (Interlab)	<0.005	<0.005	<0.05	ND	ND
Dibromomethane	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
Dichlorodifluoromethane	mg/l	0.005 : 0.05 (Interlab)	<0.005	<0.005	<0.05	ND	ND
Dichloromethane	mg/l	0.005	<0.005	<0.005	-	ND	-
Hexachlorobutadiene	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
Hexachlorobutadiene	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002	ND	ND
Hexachloroethane	mg/l	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	<0.002		
Iodomethane	mg/l	0.005	<0.005	<0.005	<0.005	ND	ND

Pentachloroethane	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005		
Trichloroethene	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
Tetrachloroethene	mg/l	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	<0.005	ND	ND
Trichlorofluoromethane	mg/l	0.001 : 0.05 (Interlab)	<0.001	<0.001	<0.05	ND	ND
Vinyl chloride	mg/l	0.0003 : 0.05 (Interlab)	<0.0003	<0.0003	<0.05	ND	ND
Acenaphthene	mg/l	0.0002 : 0.0003 (Dupe)	<0.0002	<0.0003	-	ND	-
Acenaphthene	mg/l	0.0002 : 0.002 (Interlab)	<0.0002		<0.002		ND
Acenaphthylene	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Anthracene	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Benz(a)anthracene	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Benzo(a)pyrene	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Benzo(b)&(k)fluoranthene	mg/l	0.0002	<0.0002	<0.0002	-	ND	-
Benzo(b)&(j)fluoranthene	mg/l	0.0001	<0.0001	<0.0001	-	ND	-
Benzo(g,h,i)perylene	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Benzo(k)fluoranthene	mg/l	0.0001	<0.0001	<0.0001	-	ND	-
Chrysene	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Dibenz(a,h)anthracene	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Fluoranthene	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Fluorene	mg/l	0.0002 : 0.002 (Interlab)	<0.0002	<0.0002	<0.002	ND	ND
Indeno(1,2,3-c,d)pyrene	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Naphthalene	mg/l	0.0005 : 0.005 (Interlab)	0.04	0.043	0.043	7.23%	7.23%
Naphthalene	mg/l	0.0001 : 0.005 (Interlab)	0.017	0.019	0.022	11.11%	25.64%
Phenanthrene	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Pyrene	mg/l	0.0001 : 0.002 (Interlab)	<0.0001	<0.0001	<0.002	ND	ND
Methyl Ethyl Ketone	mg/l	0.01 : 0.05 (Interlab)	<0.01	<0.01	<0.05	ND	ND
2-Hexanone	mg/l	0.005 : 0.05 (Interlab)	<0.005	<0.005	<0.05	ND	ND
Methyl iso-butyl ketone	mg/l	0.005 : 0.05 (Interlab)	<0.005	<0.005	<0.05	ND	ND
Acetone	mg/l	0.01	<0.01	<0.01	-	ND	-
Acrylonitrile	mg/l	0.0005	<0.0005	<0.0005	-	ND	-
Isophorone	mg/l	0.001 : 0.002 (Interlab)	<0.001	<0.001	<0.002	ND	ND
Methyl-t-butyl ether	mg/l	0.002	<0.002	<0.002	-	ND	-
Vinyl acetate	mg/l	0.01 : 0.05 (Interlab)	<0.01	<0.01	<0.05	ND	ND

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs: RPD <= 30%

RPD > 30%, Analyis result < 10 times LOR

RPD <= 50%, Analysis result > 10 times LOR and < 20 times LOR

DATA VALIDATION SUMMARY SHEET (Sydney)

Project Name:	**Tactical GI Contam - Minto**	**Project Number:**	**1648232**
Primary Laboratory:	**SGS**	**Work order Number:**	**SE153761**
Secondary Laboratory:	**ALS**	**Work order Number:**	**ES1613484**
Date Sampled:	**07/06/2016, 08/06/2016, 09/06/2016, 14/06/2016**	**Sample Medium:**	**Soil**

Sample Information

Number of Primary Samples:	**21**	**Number of Triplicate Samples:**	**1**
Number of Duplicate Samples:	**1**	**Number of Other QAQC Samples:**	**8**

Documentation and Sample Handling Information

	Y/N	Comments
COC completed properly?	Yes	COC delivered electronically by Golder. Signed and stamped by laboratory personnel on receipt
All requested analysis completed?	No	Insufficient sample provided for mercury analysis in all field blank samples. See overall comments.
Samples received intact and chilled?	Yes	SGS: 1.2'C, in good order, with ice. ALS: 13.8'C, ice bricks present, security seal intact.
Samples analysed within appropriate holding times?	No	3 field blanks and 3 rinsate blanks were analysed outside of relevant recommended holding-times: for TRHs, two samples were extracted seven days overdue (FB001 & RB001), two samples extracted six days overdue (FB002 & FB002) and two samples extracted five days overdue (RB003 & RB003). For VOCs, two samples were extracted seven days overdue (FB001 & RB001), two samples extracted six days overdue (FB002 & FB002) and two samples extracted five days overdue (RB003 & RB003). For VPHs, two samples were extracted six days overdue (FB001 & RB001), two samples were extracted five days overdue (FB002 & FB002) and two samples were extracted four days overdue (RB003 & RB003). See comments. All other samples were extracted and analysed within relevant recommended holding-times.
Sample volumes sufficient for QC analysis?	Yes	Sufficient sample volume provided for internal laboratory QAQC tests.
Are there non-NATA accredited methods used?	Yes	SGS is not NATA accredited for total xylenes calculation, total VOC calculation, carcinogenit BaP TEQ calculations, individual asbestos parameters, the reporting of EPN, Prothiophos (Tokuthion), andTetrachlorvinphos (Stirophos). SGS and ALS are NATA accredited for all other methods used in this batch.
Chromatograms supplied as appropriate?	N/A	N/A.
Laboratory reports signed by authorised personnel?	Yes	All reports signed.

QAQC Sample Information (Method Blank - MB, Rinsate Blank - RB, Field Blank - FB, Trip Blank - TB)

Type	Sample ID	Comments
MB	Method Blank	All results are below the LOR for SGS & ALS
FB	FB001	All results are below the LOR.
FB	FB002	All results are below the LOR.
FB	FB003	All results are below the LOR.
FB	FB10	All results are below the LOR.
RB	RB001	All results are below the LOR.
RB	RB002	Detection fo copper 1ug/L. See comments.
RB	RB003	Detection fo nickel 1ug/L and zinc 6ug/L. See comments.
RB	RB10	All results are below the LOR.

Trip Spike Information

Analyte	Control Spike Concentrations	Trip Spike Concentration	% Recovery	Comments
No TS was used in this analysis.				

Laboratory Control Spike (LCS) Analyses

Analyte Group	Comments
	All SGS and ALS laboratory control spike recoveries are within the laboratory based data quality objectives.

Matrix Spike (MS) Analyses

Analyte Group	Comments
-	All matrix spike recoveries are within the laboratory based data quality objectives (SGS & ALS).

Laboratory Duplicates (LD) Analyses

Analyte Group	Sample ID	Comments
ALS: PAHs	TRIPB	LD RPD of 2-Methylnaphthalene (21.2%) was outside of the DQO.
-	-	All other laboratory duplicate RPDs are within the laboratory based data quality objectives (SGS & ALS).

Field Duplicates (FD) Analyses

Analyte Group	Primary ID	Duplicate ID	Comments
PAHs	SB6_01	DUPB	Field duplicate RPDs of Naphthalene (104.23%) 1-Methylnaphthalene (122.39%) and 2-Methylnaphthalene (121.65%) were outside of the data quality objective. See overall comments. All other RPDs are within the data quality objective.
TPHs	SB6_01	DUPB	Field duplicate RPDs of TRH C10 - C14 Fraction (128.95%), TRH+C10 - C36 (Sum of total) (133.33%), TRH+C10 - C40 (Sum of total) (133.33%), TRH C6 - C10 Fraction F1, TRH C6 - C10 Fraction F1 less BTEX (85.71%), TRH >C10 - C16 Fraction F2 (85.71%), TRH >C10 - C12 Fraction Less Naphthalene F2 (127.87%), TRH >C16 - C34 Fraction F3 (128.95%) were outside of the data quality objective. See overall comments. All other RPDs are within the data quality objective.
			All other RPDs are within the data quality objective.

Field Triplicates (FT) Analyses

Analyte Group	Primary ID	Triplicate ID	Comments
PAHs	SB6_01	TRIPB	Field triplicate RPDs of 2-Methylnaphthalene (68.91%) was outside of the data quality objective. See overall comments. All other RPDs are within the data quality objective.
TPHs	SB6_01	TRIPB	Field triplicate RPDs of TRH C10 - C14 Fraction (53.16%), TRH+C10 - C36 (Sum of total) (48.28%), TRH+C10 - C40 (Sum of total) (57.14%), TRH >C10 - C12 Fraction Less Naphthalene F2 (50%), TRH >C16 - C34 Fraction F3 (50%) were outside of the data quality objective. See overall comments. All other RPDs are within the data quality objective.
			All other RPDs are within the data quality objective.

Surrogate Compound Monitoring Analyses

Analyte Group	Analyte(s)	Comments
All	-	All surrogate recoveries are within the laboratory based data quality objectives (SGS & ALS).

Overall Comments

SGS:Insufficient sample provided for mercury analysis on field blanks. This is not expected to affect the validity of the data as 7 other metals were analysed and below the LOR. Furthermore, merucry was only detected very slightly above the detection limit.

SGS: The detection of copper, nickel and zinc were found in rinsates, suggesting possible cross-contamination. This is not expected to affect the valididty of the results as the detection was marginal (1ug/L above the detection limit). Furthermote, detections of above were orders of magnitude above the detection limit so, thus, intereference was minimal.

SGS: The holding time for TPHs.VPHs and VOCs in soil was exceeded by seven, six, five and four days in six samples. Given that this is for the rinsate blanks and field blanks, this is not expected to affect the overall validity of the data.

As SGS stated: 'No respirable fibres detected in all samples using trace analysis technique as per AS 4964-2004.'

As SGS stated: 'Hg analysis- can't be performed due to insufficient sample provided for # 23- 26.' This does not affect the overall result of the data.

As SGS stated: '8270 - The Limit of Reporting (LOR) has been raised due to interferences from the sample matrix.'

Field duplicate and triplicate RPDs: FD and FT RPDs for PAHs and TPHs are outside of the DQO. This is expected to be the result of sample heterogeneity in soils. The result is only marginal, however, as a conservative measure, the highest concentrations will be adopted for interpretive purposes.

This batch has been validated and is considered suitable for environmental interpretive use.

Note: Data validation assesses each analyte in terms of all the data validation variables and only the exceedances and outliers are reported in this form.

*When concentrations are less than the LOR for both primary and duplicate/triplicate results, no RPDs are calculated

Performed By:	**Natalie Sandy**	**Checked By:**	**Phillipe Koenig**
Date:	**29/06/2016**	**Date:**	**8/07/2016**

Project: Tactical GI Contam - Minto
Duplicate Analysis RPDs
Project No. : 1648232
Batch/es: SE153761 & ES1613484

			Sample ID	SB6_01	DUPB	TRIPB	
			Sample Type	Primary	Field Duplicate	Field Triplicate	
			Date Sampled	7/06/2016	7/06/2016	7/06/2016	
						RPDs	
Analyte	**Units**	**LOR**				Primary vs Duplicate	Primary vs Inter Duplicate
n-Nitrosodiethylamine	mg/kg	1 : 0.5 (Interlab)	<1	<1	<0.5	ND	ND
N-Nitrosodi-n-butylamine	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
N-Nitrosodi-n-propylamine	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
1-Naphthylamine	mg/kg	1 : 0.5 (Interlab)	<1	<1	<0.5	ND	ND
2-Naphthylamine	mg/kg	1	<1	<1	-	ND	-
Diphenylamine	mg/kg	0.5	<0.5	<0.5	-	ND	-
2-Nitroaniline	mg/kg	1 : 0.5 (Interlab)	<1	<1	<1	ND	ND
3-Nitroaniline	mg/kg	1 : 0.5 (Interlab)	<1	<1	<1	ND	ND
4-Chloroaniline	mg/kg	1 : 0.5 (Interlab)	<1	<1	<0.5	ND	ND
4-Nitroaniline	mg/kg	1 : 0.5 (Interlab)	<1	<1	<0.5	ND	ND
2-methyl-5-nitroaniline	mg/kg	1 : 0.5 (Interlab)	<1	<1	<0.5	ND	ND
Aniline	mg/kg	3 : 0.5 (Interlab)	<3	<3	<0.5	ND	ND
2-methylaniline	mg/kg	1	<1	<1	-	ND	-
Nitrobenzene	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Pentachloronitrobenzene	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
1,3-Dinitrobenzene	mg/kg	1	<1	<1	-	ND	-
2,4-Dinitrotoluene	mg/kg	0.5	<0.5	<0.5	<1	ND	ND
2,6-Dinitrotoluene	mg/kg	0.5	<0.5	<0.5	<1	ND	ND
Trifluralin	mg/kg	0.5	<0.5	<0.5	-	ND	-
Azinphos-methyl	mg/kg	0.2	<0.2	<0.2		ND	
Bromophos-ethyl	mg/kg	0.2	<0.2	<0.2	-	ND	-
Carbophenothion	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chlorfenvinphos E	mg/kg	0.5	<0.5	<0.5	-	ND	-
Chlorpyriphos	mg/kg	0.2 : 0.5 (Interlab)	<0.2	<0.2	<0.5	ND	ND
Chlorpyriphos-methyl	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
cis-Chlorfenvinphos	mg/kg	2	<2	<2	-	ND	-
Coumaphos	mg/kg	0.5	<0.5	<0.5	-	ND	-
Diazinon	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Disulfoton	mg/kg	0.5	<0.5	<0.5	-	ND	-
EPN	mg/kg	0.5	<0.5	<0.5	-	ND	-
Ethion	mg/kg	0.2 : 0.5 (Interlab)	<0.2	<0.2	<0.5	ND	ND
Ethoprop	mg/kg	0.5	<0.5	<0.5	-	ND	-
Fenamiphos	mg/kg	0.5	<0.5	<0.5	-	ND	-
Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	ND	-
Fenthion	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Malathion	mg/kg	0.2 : 0.5 (Interlab)	<0.2	<0.2	<0.5	ND	ND
Methidathion	mg/kg	0.5	<0.5	<0.5	-	ND	-
Parathion-methyl	mg/kg	0.5	<0.5	<0.5	-	ND	-
Mevinphos	mg/kg	1 : 2 (Dupe)	<1	<2	-	ND	-
o,o,o-Triethylphosphorothioate	mg/kg	0.5	<0.5	<0.5	-	ND	-
Parathion	mg/kg	0.2	<0.2	<0.2	-	ND	-
Phorate	mg/kg	0.5	<0.5	<0.5	-	ND	-
Pirimphos-ethyl	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Prothiofos	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Ronnel	mg/kg	0.5	<0.5	<0.5	-	ND	-
Stirophos	mg/kg	0.5	<0.5	<0.5	-	ND	-
1-Methylnaphthalene	mg/kg	0.1	**5.4**	**1.3**	-	**122.39%**	-
2-Methylnaphthalene	mg/kg	0.1 : 0.5 (Interlab)	**7.8**	**1.9**	**16**	**121.65%**	**68.91%**
3-Methylcholanthrene	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
7,12-Dimethylbenz(a)anthracene	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Carbaryl	mg/kg	0.5	<0.5	<0.5	-	ND	-
Carbofuran	mg/kg	0.5	<0.5	<0.5	-	ND	-
Demeton-s-methyl	mg/kg	0.5	<0.5	<0.5	-	ND	-
Famphur	mg/kg	0.5	<0.5	<0.5	-	ND	-
Isodrin	mg/kg	0.1	<0.1	<0.1	-	ND	-
Mirex	mg/kg	0.1	<0.1	<0.1	-	ND	-
Pirimiphos-methyl	mg/kg	0.5	<0.5	<0.5	-	ND	-
Profenofos	mg/kg	0.5	<0.5	<0.5	-	ND	-
Sulfotepp	mg/kg	0.5	<0.5	<0.5	-	ND	-
Thionazin	mg/kg	1	<1	<1	-	ND	-
2,4-Dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
2-Methylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
2-Nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
3- & 4- Methylphenol	mg/kg	1 : 0.5 (Interlab)	<1	<1	<0.6	ND	ND
4-Nitrophenol	mg/kg	1	<1	<1	-	ND	-
Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
2,3,4,6-Tetrachlorophenol	mg/kg	0.5	<0.5	<0.5	-	ND	-
2,4,5-Trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
2,4,6-Trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
2,4-Dichlorophenol	mg/kg	0.9 : 0.5 (Dupe)	<0.9	<0.5	-	ND	-
2,4-Dichlorophenol	mg/kg	0.9 : 0.5 (Interlab)	<0.9	-	<0.5	-	ND
2,6-Dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
2-Chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
4-Chloro-3-methylphenol	mg/kg	2 : 0.5 (Interlab)	<2	<2	<0.5	ND	ND
Pentachlorophenol	mg/kg	0.5 : 1 (Interlab)	<0.5	<0.5	<1	ND	ND
Bis(2-ethylhexyl) phthalate	mg/kg	5 : 0.5 (Interlab)	<5	<5	<5	ND	ND
Butylbenzyl phthalate	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Diethyl phthalate	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Dimethyl phthalate	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Di-n-butyl phthalate	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Di-n-octyl phthalate	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
PCB 101	mg/kg	0.1	<0.1	<0.1	-	ND	-
PCB 118	mg/kg	0.1	<0.1	<0.1	-	ND	-
PCB 138	mg/kg	0.1	<0.1	<0.1	-	ND	-
PCB 153	mg/kg	0.1	<0.1	<0.1	-	ND	-
PCB 180	mg/kg	0.1	<0.1	<0.1	-	ND	-
PCB 28	mg/kg	0.1	<0.1	<0.1	-	ND	-
PCB 52	mg/kg	0.1	<0.1	<0.1	-	ND	-
Moisture	%	0.5 : 1 (Interlab)	20	20	18.4	0.00%	8.33%

1,4-Naphthoquinone	mg/kg	0.5	<0.5	<0.5	-	ND	-
2-(Acetylamino) fluorene	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
4-(Dimethylamino) azobenzene	mg/kg	1 : 0.5 (Interlab)	<1	<1	<0.5	ND	ND
4-Aminobiphenyl	mg/kg	1 : 0.5 (Interlab)	<1	<1	<0.5	ND	ND
4-Bromophenyl phenyl ether	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
4-Chlorophenyl phenyl ether	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Acetophenone	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Benzyl alcohol	mg/kg	1	<1	<1	-	ND	-
Bis(2-chloroethoxy) methane	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Bis(2-chloroethyl) ether	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Bis(2-chloroisopropyl) ether	mg/kg	0.5	<0.5	<0.5	-	ND	-
Dibenzofuran	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Ethylmethanesulfonate	mg/kg	1	<1	<1		ND	
Hexachlorocyclopentadiene	mg/kg	1 : 0.5 (Interlab)	<1	<1	<2.5	ND	ND
Hexachloropropene	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
cis-Isosafrole	mg/kg	1	<1	<1	-	ND	-
trans-Isosafrole	mg/kg	1	<1	<1	-	ND	-
Methyl methanesulfonate	mg/kg	1	<1	<1	-	ND	-
n-Nitrosomorpholine	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
N-Nitrosopiperidine	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
n-Nitrosopyrrolidine	mg/kg	1 : 0.5 (Interlab)	<1	<1	<1	ND	ND
Phenacetin	mg/kg	1 : 0.5 (Interlab)	<1	<1	<0.5	ND	ND
Safrole	mg/kg	0.5	<0.5	<0.5	-	ND	-
Arsenic	mg/kg	3 : 5 (Interlab)	<3	<3	<5	ND	ND
Cadmium	mg/kg	0.3 : 1 (Interlab)	<0.3	<0.3	<1	ND	ND
Chromium	mg/kg	0.3 : 2 (Interlab)	9	8.7	12	3.39%	28.57%
Copper	mg/kg	0.5 : 5 (Interlab)	10	6.7	11	39.52%	9.52%
Lead	mg/kg	1 : 5 (Interlab)	12	11	11	8.70%	8.70%
Mercury	mg/kg	0.01 : 0.1 (Interlab	<0.01	<0.01	<0.1	ND	ND
Nickel	mg/kg	0.5 : 2 (Interlab)	12	9.4	15	24.30%	22.22%
Zinc	mg/kg	0.5 : 5 (Interlab)	30	25	26	18.18%	14.29%
TRH C37 - C40 Fraction	mg/kg	100	<100	<100	-	ND	-
TRH C6 - C9 Fraction	mg/kg	20 : 10 (Interlab)	**71**	**29**	**168**	84.00%	81.17%
TRH C10 - C14 Fraction	mg/kg	20 : 50 (Interlab)	**2500**	**540**	**1450**	**128.95%**	**53.16%**
TRH C15 - C28 Fraction	mg/kg	45 : 100 (Interlab)	**170**	**<45**	200	ND	16.22%
TRH C29 - C36 Fraction	mg/kg	45 : 100 (Interlab)	<45	<45	<100	ND	ND
TRH+C10 - C36 (Sum of total) (Lab Reported)	mg/kg	110 : 50 (Interlab)	**2700**	**540**	**1650**	**133.33%**	**48.28%**
TRH+C10 - C40 (Sum of total) (Lab Reported)	mg/kg	210 : 50 (Interlab)	**2700**	**540**	**1500**	**133.33%**	**57.14%**
TRH C6 - C10 Fraction F1	mg/kg	25 : 10 (Interlab)	**400**	**160**	358	**85.71%**	11.08%
TRH C6 - C10 Fraction Less BTEX F1	mg/kg	25 : 10 (Interlab)	**400**	**160**	358	**85.71%**	11.08%
TRH >C10 - C16 Fraction F2	mg/kg	25 : 50 (Interlab)	**2500**	**550**	**1500**	**127.87%**	**50.00%**
TRH >C10 - C12 Fraction Less Naphthalene F2	mg/kg	25 : 50 (Interlab)	**2500**	**540**	**1500**	**128.95%**	**50.00%**
TRH >C16 - C34 Fraction F3	mg/kg	90 : 100 (Interlab)	<90	<90	<100	ND	ND
TRH >C34 - C40 Fraction F4	mg/kg	120 : 100 (Interlab	<120	<120	<100	ND	ND
1,2,4-trimethylbenzene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
1,3,5-Trimethylbenzene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Benzene	mg/kg	0.1 : 0.2 (Interlab)	<0.1	<0.1	<0.2	ND	ND
Benzene	mg/kg	0.1 : 0.2 (Interlab)	<0.1	<0.1	<0.2	ND	ND
Toluene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Isopropylbenzene	mg/kg	0.1 : 0.5 (Interlab)	0.1	<0.1	<0.5	ND	ND
n-Butylbenzene	mg/kg	0.1 : 0.5 (Interlab)	**0.3**	**<0.1**	<0.5	ND	ND
n-Propylbenzene	mg/kg	0.1 : 0.5 (Interlab)	**0.3**	**<0.1**	<0.5	ND	ND
p-Isopropyltoluene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
sec-Butylbenzene	mg/kg	0.1 : 0.5 (Interlab)	**0.8**	**0.2**	0.6	120.00%	28.57%
Styrene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
tert-Butylbenzene	mg/kg	0.1 : 0.5 (Interlab)	**0.3**	**<0.1**	<0.5	ND	ND
Ethylbenzene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Xylenes (m & p)	mg/kg	0.2 : 0.5 (Interlab)	<0.2	<0.2	<0.5	ND	ND
Xylene (o)	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Xylenes (Sum of total) (Lab Reported)	mg/kg	0.3 : 0.5 (Interlab)	<0.3	<0.3	<0.5	ND	ND
Total BTEX	mg/kg	0.6 : 0.2 (Interlab)	<0.6	<0.6	<0.2	ND	ND
a-BHC	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Aldrin	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
b-BHC	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
cis-Chlordane	mg/kg	0.1	<0.1	<0.1	-	ND	-
gamma-Chlordane	mg/kg	0.1	<0.1	<0.1	-	ND	-
d-BHC	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
DDD	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
DDE	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
DDT	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<1	ND	ND
Dieldrin	mg/kg	0.2 : 0.5 (Interlab)	<0.2	<0.2	<0.5	ND	ND
Endosulfan I	mg/kg	0.2 : 0.5 (Interlab)	<0.2	<0.2	<0.5	ND	
Endosulfan II	mg/kg	0.2 : 0.5 (Interlab)	<0.2	<0.2	<0.5	ND	ND
Endosulfan sulphate	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Endrin	mg/kg	0.2 : 0.5 (Interlab)	<0.2	<0.2	<0.5	ND	ND
Endrin ketone	mg/kg	0.1	<0.1	<0.1	-	ND	-
g-BHC	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Heptachlor	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	
Heptachlor epoxide	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	ND	-
1,2,3,4-Tetrachlorobenzene	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,2,3,5 & 1,2,4,5 Tetrachlorobenzene	mg/kg	1	<1	<1	-	ND	-
1,2,3-Trichlorobenzene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
1,2,4-Trichlorobenzene	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
1,2,4-Trichlorobenzene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
1,2-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
1,2-Dichlorobenzene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	
1,3-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
1,3-Dichlorobenzene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
1,4-Dichlorobenzene	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
1,4-Dichlorobenzene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
2-Chlorotoluene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
4-Chlorotoluene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Bromobenzene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Chlorobenzene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Hexachlorobenzene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<1	ND	
Pentachlorobenzene	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Chloronaphthalenes (1- + 2-)	mg/kg	1	<1	<1	-	ND	-

Di(2-ethylhexyl) adipate	mg/kg	0.5	<0.5	<0.5	-	ND	-
1,1,1,2-Tetrachloroethane	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
1,1,2,2-Tetrachloroethane	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
1,1,1-Trichloroethane	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
1,1,2-Trichloroethane	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
1,2,3-Trichloropropane	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
1,2-Dibromo-3-chloropropane	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
1,2-Dibromoethane	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
1,1-Dichloroethane	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
1,2-Dichloroethane	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
1,1-Dichloroethene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
cis-1,2-Dichloroethene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
trans-1,2-dichloroethene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
1,2-Dichloropropane	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
1,3-Dichloropropane	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
2,2-Dichloropropane	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
1,1-Dichloropropene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5		
cis-1,3-Dichloropropene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
trans-1,3-dichloropropene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
2-Nitropropane	mg/kg	10	<10	<10	-	ND	-
cis-1,4-Dichloro-2-butene	mg/kg	1 : 0.5 (Interlab)	<1	<1	<0.5	ND	ND
trans-1,4-Dichloro-2-butene	mg/kg	1 : 0.5 (Interlab)	<1	<1	<0.5	ND	ND
Allyl chloride	mg/kg	0.1	<0.1	<0.1	-	ND	-
Bromochloromethane	mg/kg	0.1	<0.1	<0.1	-	ND	-
Bromodichloromethane	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Bromoform	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Bromomethane	mg/kg	1 : 5 (Interlab)	<1	<1	<5	ND	ND
Carbon disulfide	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Carbon tetrachloride	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Chlorodibromomethane	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Chloroethane	mg/kg	1 : 5 (Interlab)	<1	<1	<5	ND	ND
Chloroform	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Chloromethane	mg/kg	1 : 5 (Interlab)	<1	<1	<5	ND	ND
Dibromomethane	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Dichlorodifluoromethane	mg/kg	1 : 5 (Interlab)	<1	<1	<5	ND	ND
Dichloromethane	mg/kg	0.5	<0.5	<0.5	-	ND	-
Hexachlorobutadiene	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Hexachlorobutadiene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Hexachloroethane	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Iodomethane	mg/kg	5 : 0.5 (Interlab)	<5	<5	<0.5	ND	ND
Pentachloroethane	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Trichloroethene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Tetrachloroethene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Trichlorofluoromethane	mg/kg	1 : 5 (Interlab)	<1	<1	<5	ND	ND
Vinyl chloride	mg/kg	0.1 : 5 (Interlab)	<0.1	<0.1	<5		
Acenaphthene	mg/kg	0.4 : 0.1 (Dupe)	<0.4	<0.1	-	ND	-
Acenaphthene	mg/kg	0.4 : 0.5 (Interlab)	<0.4	-	<0.5	-	ND
Acenaphthylene	mg/kg	0.2 : 0.1 (Dupe)	<0.2	<0.1	-	ND	-
Acenaphthylene	mg/kg	0.2 : 0.5 (Interlab)	<0.2	-	<0.5	-	ND
Anthracene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Benz(a)anthracene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Benzo(a)pyrene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Benzo(b)&(k)fluoranthene	mg/kg	0.2	<0.2	<0.2	-	ND	-
Benzo(b)&(j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	ND	-
Benzo(g,h,i)perylene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-		
Chrysene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND

Dibenz(a,h)anthracene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5		
Fluoranthene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Fluorene	mg/kg	0.3 : 0.1 (Dupe)	<0.3	<0.1	-	ND	-
Fluorene	mg/kg	0.3 : 0.5 (Interlab)	<0.3	-	<0.5	-	ND
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Naphthalene	mg/kg	0.1 : 0.7 (Dupe)	**2.6**	**<0.7**	-	ND	-
Naphthalene	mg/kg	0.1 : 1 (Interlab)	**5.4**	**1.7**	**3**	**104.23%**	57.14%
Naphthalene	mg/kg	0.1 : 1 (Interlab)	**2.6**	**-**	**3**	-	14.29%
Phenanthrene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Pyrene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	<0.5	ND	ND
Methyl Ethyl Ketone	mg/kg	10 : 5 (Interlab)	<10	<10	<5	ND	ND
2-Hexanone	mg/kg	5	<5	<5	<5	ND	ND
Methyl iso-butyl ketone	mg/kg	1 : 5 (Interlab)	<1	<1	<5	ND	ND
Acetone	mg/kg	10	<10	<10	-	ND	-
Acrylonitrile	mg/kg	0.1	<0.1	<0.1	-	ND	-
Isophorone	mg/kg	0.5	<0.5	<0.5	<0.5	ND	ND
Methyl-t-butyl ether	mg/kg	0.1	<0.1	<0.1	-	ND	-
Vinyl acetate	mg/kg	10 : 5 (Interlab)	<10	<10	<5	ND	ND

Legend

ND = Not Detected (RPDs not calculated if both primary and duplicate results are below LOR)

- = Not analysed/calculated

Indicates RPD result does not meet the acceptable criteria

Acceptable RPDs: RPD <= 30%

RPD > 30%, Analyis result < 10 times LOR

RPD <= 50%, Analysis result > 10 times LOR and < 20 times LOR

APPENDIX D

Groundwater Purge Field Records

GROUNDWATER SAMPLING RECORD FORM FOR LOW FLOW PURGING

Golder Associates

PROJECT INFORMATION

Project Number: 1476230 70
Client: Tactical
Site Location: Minto

Date: 21/06/16
Sampled By: NS

GROUNDWATER WELL DATA

BORE ID: MW1

Information recorded on site

Diameter of standpipe (mm)	50
Standpipe stick up (m)	-0.1m
Time	11:40
Depth to water (mbRP)	3.51
Total depth of well (mbRP)	5.2
Thickness of sediment on base of well (m)	

Interface probe used?	YES / NO
Depth to product (mbRP)	
Depth to water (mbRP)	
Thickness of product (m)	

Information from file

Surveyed reference point	
Depth of well (from log)	
Standard flow rate (L/min)	
Depth of pump intake (mbRP)	
Length of hose (m)	
Volume in hose (m)	

Note: Standard reference point is top of PVC standpipe
mbRP - metres below top of reference point
Hose volume - 0.1 L/m of 12mm diameter hose

PURGING RECORD

Depth to water after placement of pump (mbRP)

Time	Volume Purged (L)	Conductivity (mS or µS)	Temp (°C)	pH	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Depth to Water (mbRP)	Appearance (colour, turbidity, odour, etc)
11:45	1	2530	20.2	6.43	77.5	1.96	3.51	
11:50	2	2650	20.5	6.41	88.6	1.67	3.54	
11:55	3	2700	20.2	6.39	95.3	1.37	3.55	Clear, no odour
Total vol. purged (L)	3			Flow Rate (L/min)	1L/5min			

Depth to water at end of purging (mbRP)
Purging and Sampling Equipment:

SAMPLING RECORD

Time sampled: 12:00
Sample Appearance:
Colour: Pale brown
Odour: none
Sample Container and Preservation:

Sample ID: MW1
Samples filtered for metals?: (Yes) / No
Turbidity: (Low) / Medium / High
Hydrocarbon sheen? No
Duplicate sample taken? / Dup ID.: No

OBSERVATIONS

Weather Conditions: Temperature:
Precipitation :
Notes:

GROUNDWATER SAMPLING RECORD FORM FOR LOW FLOW PURGING

Golder Associates

PROJECT INFORMATION

Project Number: 14762370
Client: Tactical
Site Location: Minto

Date: 21/06/16
Sampled By: Natalie Sandy

GROUNDWATER WELL DATA

BORE ID: MW2

Information recorded on site

Diameter of standpipe (mm)	50
Standpipe stick up (m)	-
Time	7:30
Depth to water (mbRP)	3.37
Total depth of well (mbRP)	6.55
Thickness of sediment on base of well (m)	

Information from file

Surveyed reference point	
Depth of well (from log)	
Standard flow rate (L/min)	
Depth of pump intake (mbRP)	
Length of hose (m)	
Volume in hose (m)	

Interface probe used?	YES / NO
Depth to product (mbRP)	
Depth to water (mbRP)	
Thickness of product (m)	

Note: Standard reference point is top of PVC standpipe
mbRP - metres below top of reference point
Hose volume - 0.1 L/m of 12mm diameter hose

PURGING RECORD

Depth to water after placement of pump (mbRP) 3.36

Time	Volume Purged (L)	Conductivity (mS or µS)	Temp (°C)	pH	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Depth to Water (mbRP)	Appearance (colour, turbidity, odour, etc)
7:48	1	5971	18.6	6.37	99.1	2.82	3.42	Brown, high turb, no odour
	2	13988	22.6	6.63	80.7	0.7	3.43	" "
	~~3~~	~~[illegible]~~	~~[illegible]~~			~~[illegible]~~	~~[illegible]~~	" "
	3	15996	23.3	6.53	84.6	0.26	3.46	" "
	4	16332	23.3	6.52	84.8	0.27	3.48	" "
Total vol. purged (L)		9L		Flow Rate (L/min)				

Depth to water at end of purging (mbRP) 3.48
Purging and Sampling Equipment: Peristaltic pump, YSI

SAMPLING RECORD

Time sampled: 8:00
Sample ID. MW2
Sample Appearance:
Colour Brown
Odour -
Samples filtered for metals?: Yes / No
Turbidity: Low / Medium / High
Hydrocarbon sheen? No
Duplicate sample taken? / Dup ID.: No
Sample Container and Preservation:

OBSERVATIONS

Weather Conditions: Temperature: 16°C, Clear
Precipitation :
Notes:

GROUNDWATER SAMPLING RECORD FORM
FOR LOW FLOW PURGING

Golder Associates

PROJECT INFORMATION

Project Number: 1476230 70
Client: Tactical
Site Location: Minto

Date: 21/06/16
Sampled By: Natalie Sandy

GROUNDWATER WELL DATA

BORE ID: MW3

Information recorded on site

Diameter of standpipe (mm)	50
Standpipe stick up (m)	-0.1
Time	10:45am
Depth to water (mbRP)	3.35
Total depth of well (mbRP)	5.5
Thickness of sediment on base of well (m)	

Information from file

Surveyed reference point	
Depth of well (from log)	
Standard flow rate (L/min)	
Depth of pump intake (mbRP)	
Length of hose (m)	
Volume in hose (m)	

Interface probe used?	YES / NO
Depth to product (mbRP)	
Depth to water (mbRP)	
Thickness of product (m)	

Note: Standard reference point is top of PVC standpipe
mbRP - metres below top of reference point
Hose volume - 0.1 L/m of 12mm diameter hose

PURGING RECORD

Depth to water after placement of pump (mbRP) 3.35

Time	Volume Purged (L)	Conductivity (mS or µS)	Temp (°C)	pH	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Depth to Water (mbRP)	Appearance (colour, turbidity, odour, etc)
11:00	1	1730	22.6	7.01	-108.2	0.08	3.57	" "
11:02	2	1520	23.2	6.94	-121.3	0.02	4.06	
11:04	3	1510	23.1	6.94	-122.7	0.02	4.23	Pale brown, no odour
Total vol. purged (L)	3			Flow Rate (L/min)		1L/2min		

Depth to water at end of purging (mbRP) 4.25
Purging and Sampling Equipment: WQM 3 Penpump

SAMPLING RECORD

Time sampled: 11:15
Sample ID. MW3
Sample Appearance:
Colour Pale brown
Odour None
Samples filtered for metals?: (Yes) / No
Turbidity (Low) / Medium / High
Hydrocarbon sheen? No
Duplicate sample taken? / Dup ID.: No
Sample Container and Preservation:

OBSERVATIONS

Weather Conditions: Temperature: 16°C
Precipitation: None
Notes:

GROUNDWATER SAMPLING RECORD FORM FOR LOW FLOW PURGING

Golder Associates

PROJECT INFORMATION

Project Number: 1476230 70
Client: Tactical
Site Location: Minto

Date: 21/06/16
Sampled By: Natalie Sandy

GROUNDWATER WELL DATA

BORE ID: MW4

Information recorded on site

Diameter of standpipe (mm)	50
Standpipe stick up (m)	TOC - 0.12m
Time	9:00
Depth to water (mbRP)	3.17
Total depth of well (mbRP)	7.00
Thickness of sediment on base of well (m)	

Information from file

Surveyed reference point	
Depth of well (from log)	
Standard flow rate (L/min)	
Depth of pump intake (mbRP)	
Length of hose (m)	
Volume in hose (m)	

Interface probe used?	YES / NO
Depth to product (mbRP)	
Depth to water (mbRP)	
Thickness of product (m)	

Note: Standard reference point is top of PVC standpipe
mbRP - metres below top of reference point
Hose volume - 0.1 L/m of 12mm diameter hose

Field blank 8:30

PURGING RECORD

Depth to water after placement of pump (mbRP) 3.16

Time	Volume Purged (L)	Conductivity (mS or µS)	Temp (°C)	pH	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Depth to Water (mbRP)	Appearance (colour, turbidity, odour, etc)
9:10	1	126.8	19.0	7.28	-4.8	0.3	3.18	Pale brown, medium to high turbidity, no odour
9:15	2	9339	21.8	6.46	-17.6	0.27	3.22	
9:20	3	9490	22.3	6.45	-20.3	0.15	3.23	
9:25	4	9550	22.3	6.41	-15.3	0.15	3.25	
Total vol. purged (L)	4L			Flow Rate (L/min)	1L/5min			

Depth to water at end of purging (mbRP) 3.25
Purging and Sampling Equipment: WQM, Rem pump

SAMPLING RECORD

Time sampled: 9:30
Sample Appearance:
Colour: Pale brown
Odour: None
Sample Container and Preservation:

Sample ID: MW4
Samples filtered for metals? (Yes) / No
Turbidity: Low / (Medium) / High
Hydrocarbon sheen? No
Duplicate sample taken? / Dup ID.: Yes QC100/QC200

OBSERVATIONS

Weather Conditions: Temperature: Warm, 17C
Precipitation: None

Notes:
Tubing fell into well - not fished out
Needs new tubing for additional sampling

GROUNDWATER SAMPLING RECORD FORM FOR LOW FLOW PURGING

Golder Associates

PROJECT INFORMATION

Project Number: 1776230 70
Client: Tactical
Site Location: Minto

Date: ~~22~~ 21/06/16
Sampled By: Natalie Sandy

GROUNDWATER WELL DATA

BORE ID: MW5

Information recorded on site

Diameter of standpipe (mm)	50
Standpipe stick up (m)	~0.1m
Time	10:15
Depth to water (mbRP)	3.36
Total depth of well (mbRP)	6.5
Thickness of sediment on base of well (m)	

Information from file

Surveyed reference point	
Depth of well (from log)	
Standard flow rate (L/min)	
Depth of pump intake (mbRP)	
Length of hose (m)	
Volume in hose (m)	

Interface probe used?	YES / NO
Depth to product (mbRP)	
Depth to water (mbRP)	
Thickness of product (m)	

Note: Standard reference point is top of PVC standpipe
mbRP - metres below top of reference point
Hose volume - 0.1 L/m of 12mm diameter hose

PURGING RECORD

Depth to water after placement of pump (mbRP) 3.35

Time	Volume Purged (L)	Conductivity (mS or µS)	Temp (°C)	pH	Redox Potential (mV)	Dissolved Oxygen (mg/L)	Depth to Water (mbRP)	Appearance (colour, turbidity, odour, etc)
10:20	1	1020	22.3	6.33	107.9	~~4.53~~ 1.53	3.4	Clear, no odour
10:35	2	1041	22.1	6.92	107.8	1.78	3.42	" "
10:40	3	1074	22.9	6.32	109.7	1.18	3.43	" "
10:45	4	1087	23.0	6.31	110.7	1.19	3.43	" "
Total vol. purged (L)		4		Flow Rate (L/min)		1L/5min		

Depth to water at end of purging (mbRP) 3.43
Purging and Sampling Equipment: waterra peristaltic pump

SAMPLING RECORD

Time sampled: ~~4~~ 10:45
Sample ID.
Sample Appearance:
Samples filtered for metals?: Yes / No
Colour Clear
Turbidity Low / Medium / High
Odour None
Hydrocarbon sheen?
Sample Container and Preservation:
Duplicate sample taken? / Dup ID.:

OBSERVATIONS

Weather Conditions: Temperature:
Precipitation:
Notes:

APPENDIX E

Soil Bore Logs

REPORT OF BOREHOLE: MW1

SHEET: 1 OF 11

CLIENT: Tactical Group
PROJECT: Minto Warehousing and Logistics Hub
LOCATION: Culverston Road
JOB NO: 1648232

COORDS: 300026.6 m E 6231021.2 m N MGA94 56
SURFACE RL: 48.24 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 6.10 m

DRILL RIG: Mobile B80
CONTRACTOR: Nealings Drilling
LOGGED: AV DATE: 8/6/16
CHECKED: N DATE: 11/7/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	PIEZOMETER DETAILS
DTC			0	0.14 48.10	MW1_01 DS 0.04-0.10 m Rec = 60/60 mm 1xJar, 2x Asbestos + Dup/Trip D				ASPHALT dark grey, 8mm aggregate, well bound	D		Finished with a flush mounted lockable road box.
				0.60 47.64	R = 0A				Sandy GRAVEL dark grey, fine to coarse, sub-angular to angular igneous			
	M		1		MW1_02 Rec = 100/100 mm 1xJar R = 0A				Gravelly SAND fine - coarse grained, pale brown/grey, fine to medium, subangular sandstone gravel			
				1.30 46.94	SPT 0.50-0.95 m 8, 7, 8 N=15			CH	CLAY high plasticity, brown with dark brown and orange brown, trace fine, angular igneous gravel	M (<<PL)		
				1.60 46.64	MW3_03 Rec = 100/100 mm 1xJar				CLAY high plasticity, brown, trace organics (rootlets) as above without organics			Bentonite "Pel-Plug"
			2		R = 0A SPT 1.00-1.45 m 3, 4, 4 N=8 MW3_04							
ADV				2.50 45.74	Rec = 100/100 mm 1xJar R = 0A SPT 1.50-1.95 m 4, 5, 5 N=10 MW3_05				CLAY high plasticity, grey with orange brown	M (c PL)		
	L		3		Rec = 200/200 mm 1xJar R = 0A SPT 2.00-2.45 m 3, 3, 4 n = 7							
				3.80 44.44	MW3_06 Rec = 200/200 mm 1xJar R = 0A SPT 2.50-2.95 m 2, 2, 3 N=5				Sandy CLAY grey with orange brown, fine to coarse grained sand, with some fine to medium, angular to sub-rounded, igneous and sedimentary gravel			2 mm graded washed aggregate
			4									
			5		MW1_07 Rec = 200/200 mm 1xJar R = 0A SPT 4.00-4.45 m 3, 2, 2 N=4 MW1_08 Rec = 200/200 mm 1xJar R = 0A					M (>>PL)		50 mm, PN 18, PVC, 0.4mm machine slot, 5mm spacing
			6	42.14					END OF BOREHOLE @ 6.10 m TARGET DEPTH STANDPIPE INSTALLED			
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

REPORT OF BOREHOLE: MW2

SHEET: 2 OF 11

CLIENT: Tactical Group
PROJECT: Minto Warehousing and Logistics Hub
LOCATION: Culverston Road
JOB NO: 1648232

COORDS: 300069.1 m E 6231104.8 m N MGA94 56
SURFACE RL: 48.21 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 7.10 m

DRILL RIG: Mobile B80
CONTRACTOR:Nealings Drillings
LOGGED: AV DATE: 8/6/16
CHECKED: N DATE: 11/7/16

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION / CONSISTENCY DENSITY	PIEZOMETER DETAILS
DTC			0	48.21 0.20					CONCRETE grey, 20 mm aggregate, well bound		Finished with a flush mounted lockable road box.
				0.30 47.91	MW2_01 DS 0.20-0.30 m Rec = 100/100 mm 1xJar + 2xAsbestos +				GRAVEL grey and brown, with some clay, fine to medium grained, angular, igneous	M	
				0.65 47.56	Dup/Trip F R = 0A MW2_02				SAND fine - coarse grained, grey and brown	M (<<PL)	50 mm, PN 18, PVC
	M		1	1.20 47.01	Rec = 150/150 mm 1xJar R = 0A SPT 0.50-0.95 m 3, 5, 9 N=14 MW2_03				CLAY medium - high plasticity, dark brown, brown with some grey, trace fine, angular igneous gravel		
					Rec = 200/200 mm 1xJar				CLAY high plasticity, grey brown		Bentonite "Pel-Plug"
			2	2.10 46.11	R = 0A SPT 1.00-1.45 m 4, 4, 5 N=9 MW2_04				CLAY high plasticity, brown with some grey	M (<PL)	
ADV					Rec = 200/200 mm 1xJar R = 0A SPT 1.50-1.95 m 1, 4, 5 N=9 MW2_05						
			3		Rec = 200/200 mm 1xJar R = 0A SPT 2.00-2.45 m 2, 4, 6 N=10 MW2_06						
	L		4		Rec = 200/200 mm 1xJar R = 0A SPT 2.50-2.95 m 2, 5, 6 N=11 MW2_07						2 mm graded washed aggregate
			5	5.00 43.21	Rec = 200/200 mm 1xJar R = 0A SPT 5.00-5.45 m 3, 5, 6 N=11 MW2_08				as above with fine to medium gravel	M (c PL)	
	H		6		Rec = 200/200 mm 1xJar R = 0A						50 mm, PN 18, PVC, 0.4mm machine slot, 5mm spacing
			7	41.11					END OF BOREHOLE @ 7.10 m TARGET DEPTH STANDPIPE INSTALLED		
			8								
			9								
			10								

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01d
RL3

REPORT OF BOREHOLE: MW3

SHEET: 3 OF 11
DRILL RIG: Mobile B80
CONTRACTOR:
LOGGED: AV DATE: 7/6/16
CHECKED: N DATE: 11/7/16

CLIENT: Tactical Group
PROJECT: Minto Warehousing and Logistics Hub
LOCATION: Culverston Road
JOB NO: 1648232

COORDS: 299969.2 m E 6231095.7 m N MGA94 56
SURFACE RL: 48.13 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 6.10 m

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	PIEZOMETER DETAILS
DTC			0	48.08	MW3_01 DS 0.05-0.10 m Rec = 50/50 mm 1xJar R = 0A				ASPHALT dark grey, 20 mm aggregate, well bound			Finished with a flush mounted lockable road box.
				0.30 47.83					Gravelly SAND fine - coarse grained, dark grey, fine to medium, igneous, sub-angular gravel, with some clay	D - M		
				0.80 47.33	MW3_02 Rec = 200/200 mm 1xJar R = 0A				Gravelly SAND fine - coarse grained, pale brown, fine to medium, sub-angular, sandstone gravel, trace clay			
			1	1.10 47.03	SPT 0.50-0.95 m 13, 7, 4 N=11				Gravelly SAND pale brown, fine to medium, sub-angular, sandstone gravel	M		Bentonite "Pel-Plug"
				1.50 46.63	MW3_03 Rec = 100/100 mm 1xJar R = 0A				CLAY high plasticity, brown with some grey, trace organics (rootlets)	(<<PL)		
	M				SPT 1.00-1.45 m 3, 7, 9 N=16				becoming brown and orange brown			
			2	2.10 46.03	MW3_04 Rec = 450/100 mm 1xJar R = 0A				as above with some fine sand	M (<PL)		
ADV					SPT 1.50-1.95 m 3, 4, 3 N=7							
			3		MW3_05 Rec = 200/200 mm 1xJar R = 0A							
				3.50 44.63	SPT 2.00-2.45 m 2, 3, 4 N=7				Sandy CLAY high plasticity, grey, fine to medium grain sand, strong hydrovarbon odour (diesel fuel)	M (c PL)		
					MW3_06 Rec = 200/200 mm 1xJar R = 0A							2 mm graded washed aggregate
			4		SPT 2.50-2.95 m 2, 2, 2 N=4							
	L			4.70 43.43	MW3_07 Rec = 250/250 mm 1XJar R = 0A				Sandy CLAY high plasticity, orange brown, fine grained sand	M (>>PL)		
			5		MW3_08 DS 3.80-4.00 m Rec = 200/200 mm 1XJar R = 0C							
					MW3_09 Rec = 450/450 mm 1xJAr + Dup/Trip A R = 2C							
			6		SPT 4.00-4.45 m 0, 1, 2 N=3							50 mm, PN 18, PVC, 0.4mm machine slot, 5mm spacing
				42.03	SPT 4.50-4.95 m 5, 5, 6 N = 11				END OF BOREHOLE @ 6.10 m TARGET DEPTH STANDPIPE INSTALLED			
			7		MW3_10 Rec = 150/150 mm 1xJar R = 0A							
			8									
			9									
			10									

REPORT OF BOREHOLE: MW4

SHEET: 4 OF 11

CLIENT: Tactical
PROJECT: Minto Warehousing and Logistics Hub
LOCATION: Minto
JOB NO: 1648232

COORDS: 299966.7 m E 6231128.5 m N MGA94 56
SURFACE RL: 47.74 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 7.30 m

DRILL RIG: Mobile B80
CONTRACTOR: Nealings Drilling
LOGGED: JND DATE: 14/6/16
CHECKED: N DATE: 11/7/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	PIEZOMETER DETAILS
DTC	M		0	0.16 47.58	MW04_01 R = 2B PID = 862 ppm				CONCRETE			Finished with a flush mounted lockable road box.
					MW04_02 SPT: 7, 6, 6 R = 1B PID = 705 ppm				FILL: Gravelly SAND fine to medium grained, sub-rounded, grey, fine to coarse, rounded to sub rounded sandstone gravels gravel, trace sandstone rounded cobbles, strong hydrocarbon odour, slight grey staining, inferred from diesel tank.	D		
				0.70 47.04								Cement grout
			1		MW04_03 SPT: 5, 2, 2; DUPZ/TRIPZ R = 1B PID = 13.2 ppm				FILL: Silty CLAY medium plasticity, brown grey, slight hydrocarbon odour, inferred reworked natural material			50 mm, PN 18, PVC
				1.50 46.24	MW04_04 SPT: 2, 3, 3 R = 1B PID = 132.5 ppm				: as above ; becoming increasingly silty			Bentonite "Pel-Plug"
			2	2.00 45.74	MW04_05 SPT: 3, 6, 8 R = 0A PID = 8.5 ppm				Silty CLAY medium plasticity, brown with some grey			
ADV	L	21/06/16	3							D - M		
			4									2 mm graded washed aggregate
			5	5.50 42.24					: as above ; becoming pale brown with some grey pockets			
			6									50 mm, PN 18, PVC, 0.4mm machine slot, 5mm spacing
					MW04_06 SPT: 3, 5, 6 R = 0A PID = 0.3 ppm					M - W		
			7							W		
				40.44					END OF BOREHOLE @ 7.30 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 6.50 m DEPTH PIEZOMETER INSTALLED			
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for environmental purposes only, without attempt to consider geotechnical properties or the geotechnical significance of the materials encountered. As such it should not be relied upon for geotechnical purposes.

GAP gINT FN. F01d RL3

REPORT OF BOREHOLE: MW5

SHEET: 5 OF 11

CLIENT: Tactical Group
PROJECT: Minto Warehousing and Logistics Hub
LOCATION: Culverston Road
JOB NO: 1648232

COORDS: 299986.8 m E 6231132.9 m N MGA94 56
SURFACE RL: 48.14 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 7.00 m

DRILL RIG: Mobile B80
CONTRACTOR: Nealings Drilling
LOGGED: AV DATE: 7/6/16
CHECKED: N DATE: 11/7/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	PIEZOMETER DETAILS
DTC	M		0	0.18 47.96	MW5_01 C 0.00-0.18 m Rec = 180/180 mm Pavement core				CONCRETE grey, 20 mm dark grey angular aggregate, well bound			bento top 2m Finished with a flush mounted lockable road box.
	M				MW5_02 DS 0.18-0.20 m Rec = 20/20 mm				Gravelly SAND fine - coarse grained, grey, fine to coarse, subangular, sandstone gravel, with some silt	M		
				0.90 47.24	1xJar + 2xDS (asbestos) R = 0A							
			1		MW5_03 Rec = 300/300 mm				CLAY high plasticity, brown with grey and orange brown, trace fine igneous gravel, trace organics (rootlets)			Bentonite "Pel-Plug"
				1.40 46.74	1 x Jar R = 0A SPT 0.50-0.95 m 7, 8, 5 N=13			CH	CLAY high plasticity, grey brown, trace organics (rootlets)			
			2	2.10 46.04	SPT 1.00-1.45 m 4, 5, 7 N=12 MW5_04 Rec = 200/200 mm 1 x jar R = 0A SPT 1.50-1.95 m 5, 6, 7 N=13 MW5_05 Rec = 200/200 mm 1 x jar R = 0A SPT 2.00-2.45 m 2, 3, 6 N=9 MW5_06 Rec = 200/200 mm 1 x jar R = 0A SPT 2.50-2.95 m 4, 6, 7 N=13 MW5_07 Rec = 200/200 mm 1 x jar R = 0A SPT 5.00-5.45 m 3, 2, 3 N=5 MW5_08 Rec = 100/100 mm 1 x jar R = 0A				becoming brown with trace fine subrounded gravels	M (<PL)		
ADV	L		3									
			4							M (>PL)		2 mm graded washed aggregate
			5	4.90 43.24				CH	CLAY high plasticity, grey with orange brown			
			6							M (>>PL)		50 mm, PN 18, PVC, 0.4mm machine slot, 5mm spacing
			7	41.14					END OF BOREHOLE @ 7.00 m TARGET DEPTH STANDPIPE INSTALLED			
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01d RL3

REPORT OF HAND AUGERED BOREHOLE: SB1

CLIENT: Tactical Group
PROJECT: Minto Warehousing and Logistics Hub
LOCATION: Culverston Road
JOB NO: 1648232

COORDS: 299973.9 m E 6231056.8 m N MGA94
56 SURFACE RL: N/A DATUM: AHD
INCLINATION: -90°
HOLE DIA: 50 mm HOLE DEPTH: 1.90 m

LOGGED: AV DATE: 9/6/15
CHECKED: NS DATE: 11/7/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	M		0	0.19	PID = 0 ppm				CONCRETE			
					SB1_01 DS 0.19-0.21 m Rec = 20/20 mm 1xJar. 2x Asbestos				Gravelly SAND fine to coarse grained, yellow brown, fine to coarse, subangular to subrounded quartzite gravel, with some low plasticity clay	D	D	
				0.65	R = 0A PID = 0 ppm				CLAY medium to high plasticity, brown grey	M		
	H		1	1.00	SB1_02 DS 0.50-0.60 m Rec = 100/100 mm				high plasticity, very stiff		F	
				1.20	1x Jar R = 0A PID = 0 ppm SB1_03 DS 1.00-1.10 m Rec = 100/100 mm				dark brown	D - M	H	
			2		1x Jar R = 0A PID = 0.3 ppm SB1_04 DS 1.50-1.60 m Rec = 100/100 mm 1x Jar R = 0A PID = 0.5 ppm SB1_05 DS 1.80-1.90 m Rec = 100/100 mm 1x Jar R = 0A PID = 0.4 ppm				END OF HAND AUGER @ 1.90 m TARGET DEPTH BACKFILLED			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

REPORT OF HAND AUGERED BOREHOLE: SB2

CLIENT: Tactical Group
COORDS: 300027.4 m E 6231035.4 m N MGA94 56

PROJECT: Minto Warehousing and Logistics Hub
SURFACE RL: DATUM: AHD

LOCATION: Culverston Road
INCLINATION: -90°
LOGGED: AV DATE: 9/6/15

JOB NO: 1648232
HOLE DEPTH: 2.00 m
CHECKED: NS DATE: 11/7/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
			0	0.20					CONCRETE grey, 20 mm aggregate, well bound			
HA	M H			0.50	SB2_01 DS 0.20-0.30 m Rec = 100/100 mm 1xJAr, 2xAsbestos R = 0A PID = 0.1 ppm				Gravelly SAND fine - coarse grained, pale brown, fine to coarse, subangular, sandstone gravel, with some clay (FILL)	D M (c PL)	D F	
			1	1.10	SB2_02 DS 0.40-0.50 m Rec = 100/100 mm 1x Jar R = 0A PID = 0.3 ppm				CLAY high plasticity, brown			
				1.30	SB2_03 DS 0.90-1.00 m Rec = 100/100 mm 1x Jar R = 0A PID = 0.2 ppm				SAND medium to coarse grained, yellow brown			
				1.50					GRAVEL fine to medium grained, dark grey, with some sand			
			2		SB2_04 DS 1.20-1.30 m Rec = 100/100 mm 1x Jar R = 0A PID = 0.2 ppm				CLAY high plasticity, brown			
					SB2_05 DS 1.90-2.00 m Rec = 100/100 mm 1x Jar R = 0A PID = 0.1 ppm				END OF HAND AUGER @ 2.00 m TARGET DEPTH BACKFILLED			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

REPORT OF HAND AUGERED BOREHOLE: SB3

CLIENT: Tactical Group
PROJECT: Minto Warehousing and Logistics Hub
LOCATION: Culverston Road
JOB NO: 1648232

COORDS: 299987.3 m E 6231075.6 m N MGA94
56 SURFACE RL: N/A DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 2.00 m

LOGGED: AV DATE: 9/6/15
CHECKED: NS DATE: 11/7/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
			0	0.20								
EX	M			0.50	SB3_01 DS 0.20-0.30 m Rec = 100/100 mm 1xJar, 2x Asbestos + Dup/Trip G R = 0A PID = 1.6 ppm				FILL: Gravelly SAND fine to coarse, sub-rounded to sub-angular quartzite gravel	D	D	FILL
	H		1		SB3_02 DS 0.50-0.60 m Rec = 100/100 mm 1X Jar R = 0A PID = 0.6 ppm				CLAY medium to high plasticity, brown, very compacted	M (<LL)	H	
				1.70	SB3_03 DS 0.90-1.00 m Rec = 100/100 mm 1x Jar R = 0A PID = 0.4 ppm				CLAY dark brown	M (c LL)	F	
			2		SB3_04 DS 1.40-1.50 m Rec = 100/100 mm 1x Jar R = 0A PID = 0.3 ppm				END OF HAND AUGER @ 2.00 m TARGET DEPTH BACKFILLED			
					SB3_05 DS 1.90-2.00 m Rec = 100/100 mm 1x Jar R = 0A PID = 0.3 ppm							
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

REPORT OF HAND AUGERED BOREHOLE: SB4

CLIENT: Tactical Group
PROJECT: Minto Warehousing and Logistics Hub
LOCATION: Culverston Road
JOB NO: 1648232

COORDS: 300073.2 m E 6231092.2 m N MGA94
56 SURFACE RL: N/A DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 0.60 m

LOGGED: AV DATE: 9/6/15
CHECKED: NS DATE: 11/7/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
	M		0	0.20	SB4_01 DS 0.20-0.30 m Rec = 100/100 mm 1xJAr, 2xAsbestos R = 0A PID = 0.6 ppm SB4_02 DS 0.40-0.50 m Rec = 100/100 mm 1x Jar R = 0A PID = 0.3 ppm				CONCRETE grey, 20 mm aggregate, well bound	D	MD	
									Gravelly SAND fine - coarse grained, pale brown, fine to coarse, subangular sandstone gravel, with some clay, with some sandstone, sub-angular cobbles			
HA			1						END OF HAND AUGER @ 0.60 m REFUSAL BACKFILLED			
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

DRAFT REPORT OF BOREHOLE: SB5

SHEET: 10 OF 11

CLIENT: Tactical Group
PROJECT: Minto Warehousing and Logistics Hub
LOCATION: Culverston Road
JOB NO: 1648232

COORDS: 299962.9 m E 6231114.5 m N MGA94
56 SURFACE RL: N/A DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 2.45 m

DRILL RIG: Mobile B80
CONTRACTOR: Nealings Drilling
LOGGED: AV DATE: 6/8/16
CHECKED: NS DATE: 11/7/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DTC			0	0.24	SB5_01 DS 0.05-0.10 m Rec = 50/50 mm 1xjar + 2x asbestos R = 0A				ASPHALT dark grey, 10 mm aggregate, well bound	M		FILL
				0.65					Gravelly SAND dark grey, fine to coarse. angular, igneous gravel	D		
ADV	M	GWNE	1		SPT 0.50-0.95 m 2, 2, 5 N=7 SB5_02 Rec = 200/200 mm 1xJar R = 0A				Gravelly SAND pale grey, fine to medium, subangular, igneous gravel, with some silt	M (<<PL)		
				1.50	SPT 1.00-1.45 m 2, 1, 3 N=4 SB5_03 Rec = 300/300 mm 1xJar + Dup/Trip E R = 0A					M (c PL)		
			2	2.00	SPT 1.50-1.95 m 2, 3, 2 N=5 SB5_04 Rec = 100/100 mm 1xjar R = 0A				Clayey SAND fine - coarse grained, high plasticity, grey, with some fine to medium, subangular sandstone gravel	M		
					SPT 2.00-2.45 m 1, 1, 3 N=4 SB5_05 Rec = 200/200 mm 1xJar R = 0B				CLAY high plasticity, grey, with some fine to medium, subangular sandstone gravel	M (c PL)		
			3						END OF BOREHOLE @ 2.45 m TARGET DEPTH BACKFILLED			
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3

DRAFT REPORT OF BOREHOLE: SB6

SHEET: 11 OF 11

CLIENT: Tactical Group
PROJECT: Minto Warehousing and Logistics Hub
LOCATION: Culverston Road
JOB NO: 1648232

COORDS: 299976.0 m E 6231115.7 m N MGA94
56 SURFACE RL: N/A DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 2.10 m

DRILL RIG: Mobile B80
CONTRACTOR: Nealings Drilling
LOGGED: AV DATE: 6/7/16
CHECKED: NS DATE: 11/7/16

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DTC	M		0	0.18	SB6_01 DS 0.18-0.25 m Rec = 70/70 mm 1x Jar, 2x Asbestos, Dup/Trip B R = 0B SB6_02 DS 0.50-0.60 m Rec = 100/100 mm 1x Jar R = 0B SB6_03 DS 1.00-1.10 m Rec = 100/100 mm 1x Jar R = 0B SB6_04 DS 1.50-1.60 m Rec = 100/100 mm 1x Jar R = 0B SB6_05 DS 2.00-2.10 m Rec = 100/100 mm 1x Jar + Dup/Trip C R = 0B				CONCRETE grey, 20 mm aggregate, well bound	W	L - MD	Water inflow under concrete slab FILL
				0.40					Gravelly SAND fine - coarse grained, grey, fine to coarse, sandstone, subangular gravel, with some clay			
ADV	L		1						CLAY high plasticity, brown/grey, with some fine to medium, subangular sandstone gravel	M (>>PL)	S - VS	
				1.40					CLAY high plasticity, brown			ALLUVIUM
			2						END OF BOREHOLE @ 2.10 m TARGET DEPTH BACKFILLED			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

APPENDIX F

Calibration Certificates

PID Calibration Certificate

Instrument MiniRae 3000
Serial No. 592-902419

Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments			
Battery	Charge Condition	✓				
	Fuses	✓				
	Capacity	✓				
	Recharge OK?	✓				
Switch/keypad	Operation	✓				
Display	Intensity	✓				
	Operation (segments)	✓				
Grill Filter	Condition	✓				
	Seal	✓				
Pump	Operation	✓				
	Filter	✓				
	Flow	✓				
	Valves, Diaphragm	✓				
PCB	Condition	✓				
Connectors	Condition	✓				
Sensor	PID	✓	10.6 ev			
Alarms	Beeper	✓	**Low**	**High**	**TWA**	**STEL**
	Settings	✓	50ppm	100ppm	10ppm	25ppm
Software	Version	✓				
Data logger	Operation	✓				
Download	Operation	✓				
Other tests:						

Certificate of Calibration

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

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No		Instrument Reading
PID Lamp		100ppm Isobutylene	NIST	SY129		100.3ppm

Calibrated by: **Sophie Boler**

Calibration date: **3/06/2016**

Next calibration due: **3/07/2016**

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 14D101796

airmet
Air-Met Scientific Pty Ltd
1300 137 067

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

Certificate of Calibration

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

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 7.00		pH 7.00		NA1416	pH 6.95
2. pH 4.00		pH 4.00		NF1636	pH 4.20
3. mV		228.5mV		NH1934/NH1935	228.1mV
4. EC		2.76mS		NF2056	2.76mS
5. D.O		0.00ppm		3829	0.00ppm
6. Temp		22.5°C		MultiTherm	22.1°C

Calibrated by: SB **Sophie Boler**

Calibration date: **20/06/2016**

Next calibration due: **20/07/2016**

Oil / Water Interface Meter

Instrument Geotech Interface Meter (30M)
Serial No. 4254

airmet
Air-Met Scientific Pty Ltd
1300 137 067

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

Certificate of Calibration

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

Calibrated by: Lin Wang

Calibration date: **30/05/2016**

Next calibration due: **29/07/2016**

APPENDIX G

Laboratory Certificates

SAMPLE RECEIPT ADVICE

SE153857

CLIENT DETAILS

Contact	Ben Seaford
Client	GOLDER ASSOCIATES PTY LTD
Address	124 Pacific Hwy (PO Box 1302, CROWS NEST, NSW 2065) NSW 2065
Telephone	02 9478 3900
Facsimile	02 9478 3901
Email	bseaford@golder.com.au
Project	**1648232 - Culverston Rd - Minto**
Order Number	(Not specified)
Samples	8

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Tue 21/6/2016
Report Due	Wed 29/6/2016
SGS Reference	**SE153857**

SUBMISSION DETAILS

This is to confirm that 8 samples were received on Tuesday 21/6/2016. Results are expected to be ready by Wednesday 29/6/2016. Please quote SGS reference SE153857 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	8 Waters	Type of documentation received	COC
Date documentation received	21/6/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	1.2°C
Sample container provider	SGS	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		

Samples will be held for one month for water samples and two months for soil samples from date of report, unless otherwise instructed.

COMMENTS

Samples received at 21/6/16@5.00pm. Request was not registered until the next business day.

SAMPLE RECEIPT ADVICE

SE153857

CLIENT DETAILS

Client GOLDER ASSOCIATES PTY LTD

Project 1648232 - Culverston Rd - Minto

SUMMARY OF ANALYSIS

No.	Sample ID	Full 8270 SVOC in Water	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	MW1	167	1	7	9	79	8
002	MW2	167	1	7	9	79	8
003	MW3	167	1	7	9	79	8
004	MW4	167	1	7	9	79	8
005	MW5	167	1	7	9	79	8
006	QC100	167	1	7	9	79	8
007	RB100	-	1	7	9	12	8
008	FB100	-	1	7	9	12	8

The above table represents SGS' 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 .

CoC received 21/6/16 @ 2:15 pm

SAMPLE CHAIN OF CUSTODY DOCUMENTATION

Sheet of

Project No:	1648232	Lab Name:	SGS
Site Location:	Culverston Rd, Minto	Quote No.	
Sampled By:	Natalie Sandy	Order No.:	
Turnaround Time	24hrs ☐ 48hrs ☐ Standard ■	36hrs ☐ 5 Days ☐ Date Required By:	
Delivery Option	HARD ☐ FAX ☐ DISK ☐ EMAIL ■ BULLETIN BOARD ☐		
Report Format	PDF ■ EXCEL ■ ESDAT ☐		

GOLDER ASSOCIATES PTY LTD
124 Pacific Highway, Greenwich
Phone : (02) 9478 3900
Fax : (02) 9478 3901
Project Manager: Ben Seaford
Reviewed: Greg Stratton
Job Contact : Natalie Sandy
Phone: 417770679 Email: nsandy@golder.com.au
bseaford@golder.com.au

Golder Associates

Comments/Special Instructions:

ANALYSIS REQUIRED

SGS Alexandria Environmental

SE153857 COC
Received: 21-Jun-2016

LAB ID	SAMPLE ID	SAMPLE DEPTH	SAMPLE DATE	SAMPLE TYPE	SAMPLE MATRIX	No CONTAINERS	Level of Contamination (Low/High/Unknown)	ON HOLD (Until Further Instruction)	TRH/BTEXN	VOCs	SVOCs	Metals (8 metals)	Please forward to ALS
1	MW1	-	21/06/2016		Water	4	U		X	X	X	X	
2	MW2	-	21/06/2016		Water	4	U		X	X	X	X	
3	MW3	-	21/06/2016		Water	4	U		X	X	X	X	
4	MW4	-	21/06/2016		Water	4	U		X	X	X	X	
5	MW5	-	21/06/2016		Water	4	U		X	X	X	X	
6	QC100	-	21/06/2016		Water	4	U		X	X	X	X	
7	QC200	-	21/06/2016		Water	4	U		X	X	X	X	X
7	RB100	-	21/06/2016		Water	4	U		X			X	
8	FB100	-	21/06/2016		Water	4	U		X			X	

SAMPLE MATRIX = Soil/Sediment/Fill/Water/Other

SAMPLE TYPE = Composite(C)/Discrete(DC)/Disturbed(DS)/Core(CR), Grab Sample (GS)

HIGH CONCENTRATION: circle expected parameters in analysis list

	SIGNATURE	COMPANY	DATE	TIME
RELEASED BY	Natalie Sandy	Golder Associates	21/06/2016	2:30PM
RECEIVED BY	A. Odisho	SGS	21/6/16	5:00pm
RELEASED BY				
RECEIVED BY				
RELEASED BY				
RECEIVED BY				

	SIGNATURE	COMPANY	DATE	TIME	Method of Shipment
RELEASED BY					Shipping Ref:
RECEIVED BY					

To Be Filled Out By Analysing Laboratory

LAB. BATCH NUMBER

Security Seal		Chilled		Bill to:
Suitable Containers		Frozen		Address
Cool Box		Ambient		

RL3
SNT004
Feb 2011

THIS FORM IS TO BE SIGNED BY GOLDER STAFF; COURIER/S; LABORATORY ON RECEIPT OF SAMPLES.

STATEMENT OF QA/QC PERFORMANCE

SE153857 R0

CLIENT DETAILS

Contact	Ben Seaford
Client	GOLDER ASSOCIATES PTY LTD
Address	PO BOX 1302 CROWS NEST NSW 1585
Telephone	02 9478 3900
Facsimile	02 9478 3901
Email	bseaford@golder.com.au
Project	**1648232 - Culverston Rd - Minto**
Order Number	(Not specified)
Samples	8

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE153857 R0**
Date Received	21 Jun 2016
Date Reported	29 Jun 2016

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' 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 (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	8 Waters	Type of documentation received	COC
Date documentation received	21/6/2016	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	1.2°C
Sample container provider	SGS	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		

HOLDING TIME SUMMARY

SE153857 R0

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.

Full 8270 SVOC in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW1	SE153857.001	LB103979	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
MW2	SE153857.002	LB103979	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
MW3	SE153857.003	LB103979	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
MW4	SE153857.004	LB103979	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
MW5	SE153857.005	LB103979	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
QC100	SE153857.006	LB103979	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
RB100	SE153857.007	LB103979	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
FB100	SE153857.008	LB103979	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW1	SE153857.001	LB104250	21 Jun 2016	21 Jun 2016	19 Jul 2016	28 Jun 2016	19 Jul 2016	29 Jun 2016
MW2	SE153857.002	LB104250	21 Jun 2016	21 Jun 2016	19 Jul 2016	28 Jun 2016	19 Jul 2016	29 Jun 2016
MW3	SE153857.003	LB104250	21 Jun 2016	21 Jun 2016	19 Jul 2016	28 Jun 2016	19 Jul 2016	29 Jun 2016
MW4	SE153857.004	LB104250	21 Jun 2016	21 Jun 2016	19 Jul 2016	28 Jun 2016	19 Jul 2016	29 Jun 2016
MW5	SE153857.005	LB104250	21 Jun 2016	21 Jun 2016	19 Jul 2016	28 Jun 2016	19 Jul 2016	29 Jun 2016
QC100	SE153857.006	LB104250	21 Jun 2016	21 Jun 2016	19 Jul 2016	28 Jun 2016	19 Jul 2016	29 Jun 2016
RB100	SE153857.007	LB104250	21 Jun 2016	21 Jun 2016	19 Jul 2016	28 Jun 2016	19 Jul 2016	29 Jun 2016
FB100	SE153857.008	LB104250	21 Jun 2016	21 Jun 2016	19 Jul 2016	28 Jun 2016	19 Jul 2016	29 Jun 2016

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
MW1	SE153857.001	LB103890	21 Jun 2016	21 Jun 2016	18 Dec 2016	23 Jun 2016	18 Dec 2016	24 Jun 2016
MW2	SE153857.002	LB103890	21 Jun 2016	21 Jun 2016	18 Dec 2016	23 Jun 2016	18 Dec 2016	24 Jun 2016
MW3	SE153857.003	LB103890	21 Jun 2016	21 Jun 2016	18 Dec 2016	23 Jun 2016	18 Dec 2016	24 Jun 2016
MW4	SE153857.004	LB103890	21 Jun 2016	21 Jun 2016	18 Dec 2016	23 Jun 2016	18 Dec 2016	24 Jun 2016
MW5	SE153857.005	LB103890	21 Jun 2016	21 Jun 2016	18 Dec 2016	23 Jun 2016	18 Dec 2016	24 Jun 2016
QC100	SE153857.006	LB103890	21 Jun 2016	21 Jun 2016	18 Dec 2016	23 Jun 2016	18 Dec 2016	24 Jun 2016
RB100	SE153857.007	LB103890	21 Jun 2016	21 Jun 2016	18 Dec 2016	23 Jun 2016	18 Dec 2016	24 Jun 2016
FB100	SE153857.008	LB103890	21 Jun 2016	21 Jun 2016	18 Dec 2016	23 Jun 2016	18 Dec 2016	24 Jun 2016

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
MW1	SE153857.001	LB103979	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
MW2	SE153857.002	LB103979	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
MW3	SE153857.003	LB103979	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
MW4	SE153857.004	LB103979	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
MW5	SE153857.005	LB103979	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
QC100	SE153857.006	LB103979	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
RB100	SE153857.007	LB103979	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
FB100	SE153857.008	LB103979	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW1	SE153857.001	LB103970	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
MW2	SE153857.002	LB103970	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
MW3	SE153857.003	LB103970	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
MW4	SE153857.004	LB103970	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
MW5	SE153857.005	LB103970	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
QC100	SE153857.006	LB103970	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
RB100	SE153857.007	LB103970	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
FB100	SE153857.008	LB103970	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW1	SE153857.001	LB103970	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
MW2	SE153857.002	LB103970	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
MW3	SE153857.003	LB103970	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
MW4	SE153857.004	LB103970	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
MW5	SE153857.005	LB103970	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
QC100	SE153857.006	LB103970	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016
RB100	SE153857.007	LB103970	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016

HOLDING TIME SUMMARY

SE153857 R0

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.

Volatile Petroleum Hydrocarbons in Water (continued)

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
FB100	SE153857.008	LB103970	21 Jun 2016	21 Jun 2016	28 Jun 2016	23 Jun 2016	02 Aug 2016	29 Jun 2016

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 identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Full 8270 SVOC in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4,6-Tribromophenol (Surrogate)	MW1	SE153857.001	%	40 - 130%	82
	MW2	SE153857.002	%	40 - 130%	59
	MW3	SE153857.003	%	40 - 130%	72
	MW4	SE153857.004	%	40 - 130%	76
	MW5	SE153857.005	%	40 - 130%	75
	QC100	SE153857.006	%	40 - 130%	76
2-fluorobiphenyl (Surrogate)	MW1	SE153857.001	%	40 - 130%	70
	MW2	SE153857.002	%	40 - 130%	58
	MW3	SE153857.003	%	40 - 130%	64
	MW4	SE153857.004	%	40 - 130%	52
	MW5	SE153857.005	%	40 - 130%	70
	QC100	SE153857.006	%	40 - 130%	60
d14-p-terphenyl (Surrogate)	MW1	SE153857.001	%	40 - 130%	100
	MW2	SE153857.002	%	40 - 130%	84
	MW3	SE153857.003	%	40 - 130%	82
	MW4	SE153857.004	%	40 - 130%	70
	MW5	SE153857.005	%	40 - 130%	88
	QC100	SE153857.006	%	40 - 130%	82
d5-nitrobenzene (Surrogate)	MW1	SE153857.001	%	40 - 130%	62
	MW2	SE153857.002	%	40 - 130%	50
	MW3	SE153857.003	%	40 - 130%	118
	MW4	SE153857.004	%	40 - 130%	42
	MW5	SE153857.005	%	40 - 130%	62
	QC100	SE153857.006	%	40 - 130%	52
d5-phenol (Surrogate)	MW1	SE153857.001	%	20 - 130%	57
	MW2	SE153857.002	%	20 - 130%	47
	MW3	SE153857.003	%	20 - 130%	43
	MW4	SE153857.004	%	20 - 130%	43
	MW5	SE153857.005	%	20 - 130%	58
	QC100	SE153857.006	%	20 - 130%	49

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	MW1	SE153857.001	%	40 - 130%	106
	MW2	SE153857.002	%	40 - 130%	105
	MW3	SE153857.003	%	40 - 130%	109
	MW4	SE153857.004	%	40 - 130%	106
	MW5	SE153857.005	%	40 - 130%	102
	QC100	SE153857.006	%	40 - 130%	108
	RB100	SE153857.007	%	40 - 130%	94
	FB100	SE153857.008	%	40 - 130%	90
d4-1,2-dichloroethane (Surrogate)	MW1	SE153857.001	%	40 - 130%	123
	MW2	SE153857.002	%	40 - 130%	123
	MW3	SE153857.003	%	40 - 130%	110
	MW4	SE153857.004	%	40 - 130%	129
	MW5	SE153857.005	%	40 - 130%	126
	QC100	SE153857.006	%	40 - 130%	128
	RB100	SE153857.007	%	40 - 130%	123
	FB100	SE153857.008	%	40 - 130%	116
d8-toluene (Surrogate)	MW1	SE153857.001	%	40 - 130%	103
	MW2	SE153857.002	%	40 - 130%	107
	MW3	SE153857.003	%	40 - 130%	97
	MW4	SE153857.004	%	40 - 130%	101
	MW5	SE153857.005	%	40 - 130%	105
	QC100	SE153857.006	%	40 - 130%	100
	RB100	SE153857.007	%	40 - 130%	108
	FB100	SE153857.008	%	40 - 130%	95
Dibromofluoromethane (Surrogate)	MW1	SE153857.001	%	40 - 130%	127
	MW2	SE153857.002	%	40 - 130%	126
	MW3	SE153857.003	%	40 - 130%	116
	MW4	SE153857.004	%	40 - 130%	117

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 identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Dibromofluoromethane (Surrogate)	MW5	SE153857.005	%	40 - 130%	109
	QC100	SE153857.006	%	40 - 130%	110
	RB100	SE153857.007	%	40 - 130%	124
	FB100	SE153857.008	%	40 - 130%	124

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	MW1	SE153857.001	%	40 - 130%	91
	MW2	SE153857.002	%	40 - 130%	88
	MW3	SE153857.003	%	40 - 130%	111
	MW4	SE153857.004	%	40 - 130%	109
	MW5	SE153857.005	%	40 - 130%	91
	QC100	SE153857.006	%	40 - 130%	111
	RB100	SE153857.007	%	40 - 130%	94
	FB100	SE153857.008	%	40 - 130%	90
d4-1,2-dichloroethane (Surrogate)	MW1	SE153857.001	%	60 - 130%	122
	MW2	SE153857.002	%	60 - 130%	121
	MW3	SE153857.003	%	60 - 130%	118
	MW4	SE153857.004	%	60 - 130%	109
	MW5	SE153857.005	%	60 - 130%	115
	QC100	SE153857.006	%	60 - 130%	113
	RB100	SE153857.007	%	60 - 130%	123
	FB100	SE153857.008	%	60 - 130%	116
d8-toluene (Surrogate)	MW1	SE153857.001	%	40 - 130%	106
	MW2	SE153857.002	%	40 - 130%	99
	MW3	SE153857.003	%	40 - 130%	103
	MW4	SE153857.004	%	40 - 130%	95
	MW5	SE153857.005	%	40 - 130%	99
	QC100	SE153857.006	%	40 - 130%	94
	RB100	SE153857.007	%	40 - 130%	108
	FB100	SE153857.008	%	40 - 130%	95
Dibromofluoromethane (Surrogate)	MW1	SE153857.001	%	40 - 130%	111
	MW2	SE153857.002	%	40 - 130%	128
	MW3	SE153857.003	%	40 - 130%	125
	MW4	SE153857.004	%	40 - 130%	121
	MW5	SE153857.005	%	40 - 130%	113
	QC100	SE153857.006	%	40 - 130%	111
	RB100	SE153857.007	%	40 - 130%	124
	FB100	SE153857.008	%	40 - 130%	124

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.

Full 8270 SVOC in Water — **Method: ME-(AU)-[ENV]AN420**

Sample Number		Parameter	Units	LOR	Result
LB103979.001	01-PAHs	Acenaphthene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Total Benzofluoranthenes (b&j&k)	µg/L	0.2	<0.2
		Benzo(ghi)perylene	µg/L	0.1	<0.1
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Dibenzo(ah)anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		Naphthalene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		2-acetylaminofluorene	µg/L	0.5	<0.5
		7,12-dimethyl-benz(a)anthracene	µg/L	0.5	<0.5
		3-methylcholanthrene	µg/L	0.5	<0.5
	02-OCs	Aldrin	µg/L	0.1	<0.1
		Alpha-BHC	µg/L	0.1	<0.1
		Beta-BHC	µg/L	0.1	<0.1
		Delta-BHC	µg/L	0.1	<0.1
		Gamma-BHC (Lindane)	µg/L	0.1	<0.1
		p,p-DDD	µg/L	0.1	<0.1
		p,p-DDE	µg/L	0.1	<0.1
		p,p-DDT	µg/L	0.1	<0.1
		Dieldrin	µg/L	0.1	<0.1
		Alpha-endosulfan	µg/L	0.1	<0.1
		Beta-endosulfan	µg/L	0.1	<0.1
		Endosulfan sulphate	µg/L	0.1	<0.1
		Endrin	µg/L	0.1	<0.1
		Heptachlor	µg/L	0.1	<0.1
		Heptachlor epoxide	µg/L	0.1	<0.1
		Isodrin	µg/L	0.1	<0.1
		Methoxychlor	µg/L	0.1	<0.1
		Mirex	µg/L	0.1	<0.1
		Alpha-chlordane	µg/L	0.1	<0.1
		Gamma-chlordane	µg/L	0.1	<0.1
		Endrin ketone	µg/L	0.1	<0.1
	03-OPs	Azinphos-methyl (Guthion)	µg/L	0.2	<0.2
		Bromophos ethyl	µg/L	0.2	<0.2
		Carbophenothion	µg/L	0.5	<0.5
		Chlorfenvinphos-cis	µg/L	5	<5
		Chlorfenvinphos-trans	µg/L	0.5	<0.5
		Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2
		Chlorpyrifos-methyl	µg/L	0.5	<0.5
		Co-Ral (Coumaphos)	µg/L	0.5	<0.5
		Diazinon (Dimpylate)	µg/L	0.5	<0.5
		Dichlorvos	µg/L	0.5	<0.5
		Demeton-S-methyl	µg/L	0.5	<0.5
		Dimethoate	µg/L	0.5	<0.5
		Disulfoton (Di-syston)	µg/L	0.5	<0.5
		EPN*	µg/L	0.5	<0.5
		Ethion	µg/L	0.2	<0.2
		Ethoprophos (Ethoprop or Prophos)	µg/L	0.5	<0.5
		Famphur (Famophos)	µg/L	0.5	<0.5
		Fenamiphos (Phenamiphos)	µg/L	0.5	<0.5
		Fenchlorophos (Ronnel)	µg/L	0.5	<0.5
		Fenitrothion	µg/L	0.2	<0.2

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.

Full 8270 SVOC in Water (continued) — **Method: ME-(AU)-[ENV]AN420**

Sample Number		Parameter	Units	LOR	Result
LB103979.001	03-OPs	Fenthion	µg/L	0.5	<0.5
		Malathion (Maldison)	µg/L	0.2	<0.2
		Methidathion	µg/L	0.5	<0.5
		Mevinphos-cis/trans	µg/L	1	<1
		o,o,o-triethyl phosphorothioate	µg/L	0.5	<0.5
		Parathion ethyl (Parathion)	µg/L	0.2	<0.2
		Parathion methyl	µg/L	0.5	<0.5
		Phorate	µg/L	0.5	<0.5
		Pirimiphos-ethyl	µg/L	0.5	<0.5
		Pirimiphos-methyl	µg/L	0.5	<0.5
		Profenofos	µg/L	0.5	<0.5
		Prothiophos (Tokuthion)*	µg/L	0.5	<0.5
		Sulfotepp	µg/L	0.5	<0.5
		Tetrachlorvinphos (Stirophos)*	µg/L	0.5	<0.5
	04-PCB UPAC(7) Congeners	PCB Congener C28	µg/L	0.1	<0.1
		PCB Congener C52	µg/L	0.1	<0.1
		PCB Congener C101	µg/L	0.1	<0.1
		PCB Congener C118	µg/L	0.1	<0.1
		PCB Congener C138	µg/L	0.1	<0.1
		PCB Congener C153	µg/L	0.1	<0.1
		PCB Congener C180	µg/L	0.1	<0.1
	05-SVCH (Cl Benzenes, Hydrocarbons & VOCs)	1/2-Chloronaphthalene	µg/L	1	<1
		Hexachlorobenzene (HCB)	µg/L	0.1	<0.1
		1,2-dichlorobenzene	µg/L	0.5	<0.5
		1,3-dichlorobenzene	µg/L	0.5	<0.5
		1,4-dichlorobenzene	µg/L	0.5	<0.5
		Hexachlorobutadiene	µg/L	0.5	<0.5
		Hexachlorocyclopentadiene	µg/L	2	<2
		Hexachloroethane	µg/L	0.5	<0.5
		Hexachloroproprene	µg/L	0.5	<0.5
		Pentachlorobenzene	µg/L	0.5	<0.5
		Pentachloroethane	µg/L	0.5	<0.5
		1,2,3,5 and 1,2,4,5-tetrachlorobenzene	µg/L	1	<1
		1,2,3,4-tetrachlorobenzene	µg/L	0.5	<0.5
		1,2,4-trichlorobenzene	µg/L	0.5	<0.5
	06-Phthalates	Bis(2-ethylhexyl)phthalate	µg/L	50	<10
		Bis(2-ethylhexyl)adipate	µg/L	1	<1
		Butyl benzyl phthalate	µg/L	1	<1
		Di-n-butyl phthalate	µg/L	10	<10
		Diethyl phthalate	µg/L	5	<5
		Dimethyl phthalate	µg/L	1	<1
		Dioctyl phthalate	µg/L	1	<1
	07-Carbamates	Carbofuran	µg/L	0.5	<0.5
		Carbaryl	µg/L	0.5	<0.5
	08-Herbicides (normal)	Trifluralin	µg/L	0.5	<0.5
	09-Nitrosamines	N-nitroso-di-n-butylamine (NDBA)	µg/L	1	<1
		N-nitroso-diethylamine (NDEA)	µg/L	1	<1
		N-nitroso-di-n-propylamine (NDPA)	µg/L	1	<1
		N-nitroso-morpholine (NMOR)	µg/L	1	<1
		N-nitroso-piperidine (NPIP)	µg/L	1	<1
		N-nitroso-pyrrolidine (NPYR)	µg/L	1	<1
		4-amino biphenyl	µg/L	1	<1
	10-Nitroaromatics and Ketones	Acetophenone	µg/L	1	<1
		1,3-dinitrobenzene	µg/L	1	<1
		2,4-dinitrotoluene	µg/L	1	<1
		2,6-dinitrotoluene	µg/L	1	<1
		Isophorone	µg/L	1	<1
		Nitrobenzene	µg/L	1	<1
		p-(dimethylamino) azobenzene	µg/L	1	<1
		Phenacetin	µg/L	1	<1
		Pentachloronitrobenzene (quintozene)	µg/L	1	<1

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.

Full 8270 SVOC in Water (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB103979.001	11-Anilines and Amines	Aniline	µg/L	5	<5
		4-chloroaniline	µg/L	1	<1
		2-nitroaniline	µg/L	1	<1
		3-nitroaniline	µg/L	1	<1
		4-nitroaniline	µg/L	1	<1
		Diphenylamine	µg/L	1	<1
		o-Toluidine	µg/L	1	<1
		5-nitro-o-toluidine	µg/L	1	<1
		1-naphthylamine	µg/L	2	<2
		2-naphthylamine	µg/L	2	<2
	12-Haloethers	Bis(2-chloroethoxy) methane	µg/L	1	<1
		Bis(2-chloroethyl) ether	µg/L	1	<1
		Bis(2-chloroisopropyl) ether	µg/L	1	<1
		4-chlorophenyl phenyl ether	µg/L	1	<1
		4-bromophenyl phenyl ether	µg/L	1	<1
	13-Other SVOCs	Methyl methanesulfonate	µg/L	1	<1
		Ethyl methanesulfonate	µg/L	1	<1
		Dibenzofuran	µg/L	1	<1
		Benzyl alcohol	µg/L	1	<1
		Safrole	µg/L	1	<1
		Isosafrole Isomer 1	µg/L	1	<1
		Isosafrole Isomer 2	µg/L	1	<1
		1,4-naphthoquinone	µg/L	1	<1
		Thionazin	µg/L	1	<1
	14-Speciated Routine	3/4-methyl phenol (m/p-cresol)	µg/L	1	<1
	Phenols	2-methyl phenol (o-cresol)	µg/L	0.5	<0.5
		2,6-dichlorophenol	µg/L	0.5	<0.5
		2,3,4,6 and 2,3,5,6-tetrachlorophenol	µg/L	1	<1
		2,4,5-trichlorophenol	µg/L	0.5	<0.5
		4-chloro-3-methylphenol	µg/L	2	<2
		2-chlorophenol	µg/L	0.5	<0.5
		2,4-dichlorophenol	µg/L	0.5	<0.5
		2,4-dimethylphenol	µg/L	0.5	<0.5
		2-nitrophenol	µg/L	0.5	<0.5
		Phenol	µg/L	0.5	<0.5
		2,4,6-trichlorophenol	µg/L	0.5	<0.5
		Pentachlorophenol	µg/L	0.5	<0.5
		4-nitrophenol	µg/L	1	<1
	Surrogates	d5-phenol (Surrogate)	%	-	41
		d5-nitrobenzene (Surrogate)	%	-	112
		2-fluorobiphenyl (Surrogate)	%	-	126
		2,4,6-Tribromophenol (Surrogate)	%	-	45
		d14-p-terphenyl (Surrogate)	%	-	108

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Number	Parameter	Units	LOR	Result
LB104250.001	Mercury	mg/L	0.0001	<0.0001

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB103890.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR

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.

TRH (Total Recoverable Hydrocarbons) in Water (continued)

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB103979.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB103970.001	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	2	<2
		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	0.5	<0.5
	Halogenated Aromatics	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
		1,2,3-trichlorobenzene	µg/L	0.5	<0.5
	Monocyclic Aromatic Hydrocarbons	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
		n-propylbenzene	µg/L	0.5	<0.5
		1,3,5-trimethylbenzene	µg/L	0.5	<0.5
		tert-butylbenzene	µg/L	0.5	<0.5

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.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB103970.001	Monocyclic Aromatic Hydrocarbons	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	<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
		2-hexanone (MBK)	µg/L	5	<5
	Polycyclic VOCs	Naphthalene	µg/L	0.5	<0.5
	Sulphonated	Carbon disulfide	µg/L	2	<2
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	128
		d4-1,2-dichloroethane (Surrogate)	%	-	124
		d8-toluene (Surrogate)	%	-	101
		Bromofluorobenzene (Surrogate)	%	-	107
	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

Sample Number		Parameter	Units	LOR	Result
LB103970.001		TRH C6-C9	µg/L	40	<40
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	118
		d4-1,2-dichloroethane (Surrogate)	%	-	124
		d8-toluene (Surrogate)	%	-	107
		Bromofluorobenzene (Surrogate)	%	-	89

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 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 x 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 identifer 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

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153857.008	LB103890.024	Arsenic, As	µg/L	1	<1	<1	200	0
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
		Chromium, Cr	µg/L	1	<1	<1	200	0
		Copper, Cu	µg/L	1	<1	<1	200	0
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	<1	<1	200	0
		Zinc, Zn	µg/L	5	<5	<5	200	0

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153857.008	LB103970.011	Monocyclic	Benzene	µg/L	0.5	<0.5	0.01	200	0
		Aromatic	Toluene	µg/L	0.5	<0.5	0.08	200	0
			Ethylbenzene	µg/L	0.5	<0.5	0.04	200	0
			m/p-xylene	µg/L	1	<1	0.09	200	0
			o-xylene	µg/L	0.5	<0.5	0.08	200	0
		Polycyclic	Naphthalene	µg/L	0.5	<0.5	0.18	189	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	6.2	5.61	30	10
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.8	5.89	30	2
			d8-toluene (Surrogate)	µg/L	-	4.8	4.4	30	8
			Bromofluorobenzene (Surrogate)	µg/L	-	4.5	4.63	30	2

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153857.008	LB103970.011		TRH C6-C10	µg/L	50	<50	0	200	0
			TRH C6-C9	µg/L	40	<40	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	6.2	5.61	30	10
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.8	5.89	30	2
			d8-toluene (Surrogate)	µg/L	-	4.8	4.4	30	8
			Bromofluorobenzene (Surrogate)	µg/L	-	4.5	4.63	30	2
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	0.01	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	-0.3	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.

Full 8270 SVOC in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB103979.002	01-PAHs	Acenaphthene	µg/L	0.1	40	40	60 - 140	100
		Acenaphthylene	µg/L	0.1	45	40	60 - 140	112
		Anthracene	µg/L	0.1	38	40	60 - 140	96
		Benzo(a)pyrene	µg/L	0.1	45	40	60 - 140	112
		Fluoranthene	µg/L	0.1	44	40	60 - 140	110
		Naphthalene	µg/L	0.1	43	40	60 - 140	109
		Phenanthrene	µg/L	0.1	39	40	60 - 140	98
		Pyrene	µg/L	0.1	39	40	60 - 140	98
	02-OCs	Aldrin	µg/L	0.1	3.7	4	60 - 140	91
		Delta-BHC	µg/L	0.1	4.2	4	60 - 140	105
		p,p-DDT	µg/L	0.1	3.6	4	60 - 140	90
		Dieldrin	µg/L	0.1	4.3	4	60 - 140	108
		Endrin	µg/L	0.1	4.5	4	60 - 140	113
		Heptachlor	µg/L	0.1	3.3	4	60 - 140	81
	03-OPs	Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	8.2	8	60 - 140	103
		Diazinon (Dimpylate)	µg/L	0.5	8.0	8	60 - 140	100
		Dichlorvos	µg/L	0.5	9.2	8	60 - 140	114
		Ethion	µg/L	0.2	7.3	8	60 - 140	91
	05-SVCH (Cl	Hexachlorobenzene (HCB)	µg/L	0.1	3.9	4	60 - 140	98
	Benzenes,	Hexachlorobutadiene	µg/L	0.5	4.2	4	60 - 140	106
		Hexachloroethane	µg/L	0.5	4.5	4	60 - 140	113
		Pentachlorobenzene	µg/L	0.5	3.9	4	60 - 140	97
		1,2,3,4-tetrachlorobenzene	µg/L	0.5	4.5	4	60 - 140	114
	06-Phthalates	Bis(2-ethylhexyl)phthalate	µg/L	50	<10	8	60 - 140	113
		Butyl benzyl phthalate	µg/L	1	9	8	60 - 140	110
		Di-n-butyl phthalate	µg/L	10	<10	8	60 - 140	109
		Diethyl phthalate	µg/L	5	9	8	60 - 140	112
		Dimethyl phthalate	µg/L	1	9	8	60 - 140	110
		Dioctyl phthalate	µg/L	1	9	8	60 - 140	116
	09-Nitrosamine	N-nitroso-di-n-propylamine (NDPA)	µg/L	1	39	32	60 - 140	122
	10-Nitroaromati	Pentachloronitrobenzene (quintozene)	µg/L	1	4	4	60 - 140	107
	14-Speciated	2,4-dichlorophenol	µg/L	0.5	42	40	60 - 140	105
	Routine	Phenol	µg/L	0.5	33	40	60 - 140	82
		2,4,6-trichlorophenol	µg/L	0.5	46	40	60 - 140	114
		Pentachlorophenol	µg/L	0.5	32	40	60 - 140	80
	Surrogates	d5-phenol (Surrogate)	µg/L	-	0.9	2	40 - 130	45
		d5-nitrobenzene (Surrogate)	µg/L	-	0.6	0.5	40 - 130	120
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.6	0.5	40 - 130	118
		2,4,6-Tribromophenol (Surrogate)	µg/L	-	4.1	5	40 - 130	83
		d14-p-terphenyl (Surrogate)	µg/L	-	0.5	0.5	40 - 130	98

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB103890.002	Arsenic, As	µg/L	1	20	20	80 - 120	101
	Cadmium, Cd	µg/L	0.1	21	20	80 - 120	106
	Chromium, Cr	µg/L	1	21	20	80 - 120	107
	Copper, Cu	µg/L	1	22	20	80 - 120	109
	Lead, Pb	µg/L	1	22	20	80 - 120	110
	Nickel, Ni	µg/L	1	22	20	80 - 120	110
	Zinc, Zn	µg/L	5	22	20	80 - 120	110

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB103979.002		TRH C10-C14	µg/L	50	1000	1200	60 - 140	86
		TRH C15-C28	µg/L	200	1200	1200	60 - 140	97
		TRH C29-C36	µg/L	200	1100	1200	60 - 140	94
	TRH F Bands	TRH >C10-C16 (F2)	µg/L	60	1100	1200	60 - 140	93
		TRH >C16-C34 (F3)	µg/L	500	1200	1200	60 - 140	96
		TRH >C34-C40 (F4)	µg/L	500	570	600	60 - 140	95

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR

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.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB103970.002	Halogenated	1,1-dichloroethene	µg/L	0.5	50	45.45	60 - 140	109
	Aliphatics	1,2-dichloroethane	µg/L	0.5	49	45.45	60 - 140	109
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	49	45.45	60 - 140	109
	Halogenated	Chlorobenzene	µg/L	0.5	49	45.45	60 - 140	109
	Monocyclic	Benzene	µg/L	0.5	49	45.45	60 - 140	108
	Aromatic	Toluene	µg/L	0.5	49	45.45	60 - 140	109
		Ethylbenzene	µg/L	0.5	50	45.45	60 - 140	109
		m/p-xylene	µg/L	1	99	90.9	60 - 140	109
		o-xylene	µg/L	0.5	49	45.45	60 - 140	109
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.0	5	60 - 140	100
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.9	5	60 - 140	98
		d8-toluene (Surrogate)	µg/L	-	4.8	5	60 - 140	96
		Bromofluorobenzene (Surrogate)	µg/L	-	4.6	5	60 - 140	92
	Trihalomethan	Chloroform (THM)	µg/L	0.5	49	45.45	60 - 140	108

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB103970.002		TRH C6-C10	µg/L	50	940	946.63	60 - 140	99
		TRH C6-C9	µg/L	40	760	818.71	60 - 140	93
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.1	5	60 - 140	101
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.1	5	60 - 140	102
		d8-toluene (Surrogate)	µg/L	-	5.1	5	60 - 140	102
		Bromofluorobenzene (Surrogate)	µg/L	-	5.1	5	60 - 140	102
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	640	639.67	60 - 140	100

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 identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water — Method: ME-(AU)-[ENV]AN311/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE153829.001	LB104250.004	Mercury	mg/L	0.0001	0.0086	<0.0001	0.008	108

Trace Metals (Dissolved) in Water by ICPMS — Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE153806.006	LB103890.004	Arsenic, As	µg/L	1	20	<1	20	100
		Cadmium, Cd	µg/L	0.1	20	<0.1	20	102
		Chromium, Cr	µg/L	1	22	1	20	104
		Copper, Cu	µg/L	1	22	<1	20	107
		Lead, Pb	µg/L	1	21	<1	20	106
		Nickel, Ni	µg/L	1	21	<1	20	106
		Zinc, Zn	µg/L	5	23	<5	20	109

MATRIX SPIKE DUPLICATES

SE153857 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 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 x 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 identifer 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.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover tthe performance of this service.
-	Sample not analysed for this analyte.

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	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Client	GOLDER ASSOCIATES PTY LTD
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Project	**1648232 - Culverston Rd - Minto**
Order Number	(Not specified)
Samples	8

LABORATORY DETAILS

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SGS Reference	**SE153857 R0**
Date Received	21/6/2016
Date Reported	29/6/2016

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

VOC/VPH/8270 - The Limit of Reporting (LOR) has been raised due to interferences from the sample matrix.

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

VOCs in Water [AN433] Tested: 23/6/2016

PARAMETER	UOM	LOR	MW1 WATER - 21/6/2016 SE153857.001	MW2 WATER - 21/6/2016 SE153857.002	MW3 WATER - 21/6/2016 SE153857.003	MW4 WATER - 21/6/2016 SE153857.004	MW5 WATER - 21/6/2016 SE153857.005
Benzene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
m/p-xylene	µg/L	1	<1	<1	<10↑	<1	<1
o-xylene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5	<1.5	<15↑	<1.5	<1.5
Total BTEX	µg/L	3	<3	<3	<30↑	<3	<3
Naphthalene	µg/L	0.5	<0.5	<0.5	**210**	**40**	<0.5
Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	<5	<50↑	<5	<5
Chloromethane	µg/L	5	<5	<5	<50↑	<5	<5
Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	<0.3	<3.0↑	<0.3	<0.3
Bromomethane	µg/L	10	<10	<10	<100↑	<10	<10
Chloroethane	µg/L	5	<5	<5	<50↑	<5	<5
Trichlorofluoromethane	µg/L	1	<1	<1	<10↑	<1	<1
Acetone (2-propanone)	µg/L	10	<10	<10	<100↑	<10	<10
Iodomethane	µg/L	5	<5	<5	<50↑	<5	<5
1,1-dichloroethene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Acrylonitrile	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Dichloromethane (Methylene chloride)	µg/L	5	<5	<5	<50↑	<5	<5
Allyl chloride	µg/L	2	<2	<2	<20↑	<2	<2
Carbon disulfide	µg/L	2	<2	<2	<20↑	<2	<2
trans-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
MtBE (Methyl-tert-butyl ether)	µg/L	2	<2	<2	<20↑	<2	<2
1,1-dichloroethane	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Vinyl acetate	µg/L	10	<10	<10	<1000↑	<10	<10
MEK (2-butanone)	µg/L	10	<10	<10	<100↑	<10	<10
cis-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Bromochloromethane	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Chloroform (THM)	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
2,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,2-dichloroethane	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,1,1-trichloroethane	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,1-dichloropropene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Carbon tetrachloride	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Dibromomethane	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
2-nitropropane	µg/L	100	<100	<100	<1000↑	<100	<100
Bromodichloromethane (THM)	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
MIBK (4-methyl-2-pentanone)	µg/L	5	<5	<5	<50↑	<5	<5
cis-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
trans-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,1,2-trichloroethane	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,3-dichloropropane	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Dibromochloromethane (THM)	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
2-hexanone (MBK)	µg/L	5	<5	<5	<50↑	<5	<5
1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Chlorobenzene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Bromoform (THM)	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
cis-1,4-dichloro-2-butene	µg/L	1	<1	<1	<10↑	<1	<1
Styrene (Vinyl benzene)	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,2,3-trichloropropane	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
trans-1,4-dichloro-2-butene	µg/L	1	<1	<1	<10↑	<1	<1

VOCs in Water [AN433] Tested: 23/6/2016 (continued)

PARAMETER	UOM	LOR	MW1 WATER - 21/6/2016 SE153857.001	MW2 WATER - 21/6/2016 SE153857.002	MW3 WATER - 21/6/2016 SE153857.003	MW4 WATER - 21/6/2016 SE153857.004	MW5 WATER - 21/6/2016 SE153857.005
Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	<0.5	**26**	**4.9**	<0.5
Bromobenzene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
n-propylbenzene	µg/L	0.5	<0.5	<0.5	**41**	**6.5**	<0.5
2-chlorotoluene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
4-chlorotoluene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,3,5-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
tert-butylbenzene	µg/L	0.5	<0.5	<0.5	<5.0↑	**0.7**	<0.5
1,2,4-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
sec-butylbenzene	µg/L	0.5	<0.5	<0.5	**21**	**2.8**	<0.5
1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,4-dichlorobenzene	µg/L	0.3	<0.3	<0.3	<3.0↑	<0.3	<0.3
p-isopropyltoluene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
n-butylbenzene	µg/L	0.5	<0.5	<0.5	**15**	**1.3**	<0.5
1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,2,4-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Hexachlorobutadiene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,2,3-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Total VOC	µg/L	10	-	-	-	-	-

VOCs in Water [AN433] Tested: 23/6/2016 (continued)

PARAMETER	UOM	LOR	QC100 WATER - 21/6/2016 SE153857.006	RB100 WATER - 21/6/2016 SE153857.007	FB100 WATER - 21/6/2016 SE153857.008
Benzene	µg/L	0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5
m/p-xylene	µg/L	1	<1	<1	<1
o-xylene	µg/L	0.5	<0.5	<0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5	<1.5	<1.5
Total BTEX	µg/L	3	<3	<3	<3
Naphthalene	µg/L	0.5	**43**	<0.5	<0.5
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	-	-
Acetone (2-propanone)	µg/L	10	<10	-	-
Iodomethane	µg/L	5	<5	-	-
1,1-dichloroethene	µg/L	0.5	<0.5	-	-
Acrylonitrile	µg/L	0.5	<0.5	-	-
Dichloromethane (Methylene chloride)	µg/L	5	<5	-	-
Allyl chloride	µg/L	2	<2	-	-
Carbon disulfide	µg/L	2	<2	-	-
trans-1,2-dichloroethene	µg/L	0.5	<0.5	-	-
MtBE (Methyl-tert-butyl ether)	µg/L	2	<2	-	-
1,1-dichloroethane	µg/L	0.5	<0.5	-	-
Vinyl acetate	µg/L	10	<10	-	-
MEK (2-butanone)	µg/L	10	<10	-	-
cis-1,2-dichloroethene	µg/L	0.5	<0.5	-	-
Bromochloromethane	µg/L	0.5	<0.5	-	-
Chloroform (THM)	µg/L	0.5	<0.5	-	-
2,2-dichloropropane	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	-	-
1,2-dichloropropane	µg/L	0.5	<0.5	-	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	-	-
2-nitropropane	µg/L	100	<100	-	-
Bromodichloromethane (THM)	µg/L	0.5	<0.5	-	-
MIBK (4-methyl-2-pentanone)	µg/L	5	<5	-	-
cis-1,3-dichloropropene	µg/L	0.5	<0.5	-	-
trans-1,3-dichloropropene	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	-	-
Dibromochloromethane (THM)	µg/L	0.5	<0.5	-	-
2-hexanone (MBK)	µg/L	5	<5	-	-
1,2-dibromoethane (EDB)	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	-	-
Chlorobenzene	µg/L	0.5	<0.5	-	-
Bromoform (THM)	µg/L	0.5	<0.5	-	-
cis-1,4-dichloro-2-butene	µg/L	1	<1	-	-
Styrene (Vinyl benzene)	µg/L	0.5	<0.5	-	-
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	-	-

VOCs in Water [AN433] Tested: 23/6/2016 (continued)

PARAMETER	UOM	LOR	QC100 WATER - 21/6/2016 SE153857.006	RB100 WATER - 21/6/2016 SE153857.007	FB100 WATER - 21/6/2016 SE153857.008
Isopropylbenzene (Cumene)	µg/L	0.5	**5.1**	-	-
Bromobenzene	µg/L	0.5	<0.5	-	-
n-propylbenzene	µg/L	0.5	**6.6**	-	-
2-chlorotoluene	µg/L	0.5	<0.5	-	-
4-chlorotoluene	µg/L	0.5	<0.5	-	-
1,3,5-trimethylbenzene	µg/L	0.5	<0.5	-	-
tert-butylbenzene	µg/L	0.5	**0.7**	-	-
1,2,4-trimethylbenzene	µg/L	0.5	<0.5	-	-
sec-butylbenzene	µg/L	0.5	**3.0**	-	-
1,3-dichlorobenzene	µg/L	0.5	<0.5	-	-
1,4-dichlorobenzene	µg/L	0.3	<0.3	-	-
p-isopropyltoluene	µg/L	0.5	<0.5	-	-
1,2-dichlorobenzene	µg/L	0.5	<0.5	-	-
n-butylbenzene	µg/L	0.5	**1.2**	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	-	-
1,2,4-trichlorobenzene	µg/L	0.5	<0.5	-	-
Hexachlorobutadiene	µg/L	0.5	<0.5	-	-
1,2,3-trichlorobenzene	µg/L	0.5	<0.5	-	-
Total VOC	µg/L	10	-	-	-

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 23/6/2016

PARAMETER	UOM	LOR	MW1 WATER - 21/6/2016 SE153857.001	MW2 WATER - 21/6/2016 SE153857.002	MW3 WATER - 21/6/2016 SE153857.003	MW4 WATER - 21/6/2016 SE153857.004	MW5 WATER - 21/6/2016 SE153857.005
TRH C6-C9	µg/L	40	<40	<40	<400↑	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	<50	<500↑	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	<500↑	<50	<50

PARAMETER	UOM	LOR	QC100 WATER - 21/6/2016 SE153857.006	RB100 WATER - 21/6/2016 SE153857.007	FB100 WATER - 21/6/2016 SE153857.008
TRH C6-C9	µg/L	40	<40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	**51**	<50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	**50**	<50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 23/6/2016

PARAMETER	UOM	LOR	MW1 WATER - 21/6/2016 SE153857.001	MW2 WATER - 21/6/2016 SE153857.002	MW3 WATER - 21/6/2016 SE153857.003	MW4 WATER - 21/6/2016 SE153857.004	MW5 WATER - 21/6/2016 SE153857.005
TRH C10-C14	µg/L	50	<50	<50	**8400**	<50	<50
TRH C15-C28	µg/L	200	<200	<200	**1500**	<200	<200
TRH C29-C36	µg/L	200	<200	<200	<200	<200	<200
TRH C37-C40	µg/L	200	<200	<200	<200	<200	<200
TRH >C10-C16 (F2)	µg/L	60	<60	<60	**8800**	<60	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500	**920**	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500	<500	<500	<500
TRH C10-C36	µg/L	450	<450	<450	**9900**	<450	<450
TRH C10-C40	µg/L	650	<650	<650	**9900**	<650	<650

PARAMETER	UOM	LOR	QC100 WATER - 21/6/2016 SE153857.006	RB100 WATER - 21/6/2016 SE153857.007	FB100 WATER - 21/6/2016 SE153857.008
TRH C10-C14	µg/L	50	**230**	<50	<50
TRH C15-C28	µg/L	200	<200	<200	<200
TRH C29-C36	µg/L	200	<200	<200	<200
TRH C37-C40	µg/L	200	<200	<200	<200
TRH >C10-C16 (F2)	µg/L	60	**260**	<60	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500	<500
TRH C10-C36	µg/L	450	<450	<450	<450
TRH C10-C40	µg/L	650	<650	<650	<650

Full 8270 SVOC in Water [AN420] Tested: 23/6/2016

PARAMETER	UOM	LOR	MW1 WATER - 21/6/2016 SE153857.001	MW2 WATER - 21/6/2016 SE153857.002	MW3 WATER - 21/6/2016 SE153857.003	MW4 WATER - 21/6/2016 SE153857.004	MW5 WATER - 21/6/2016 SE153857.005
Acenaphthene	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.2↑	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Total Benzofluoranthenes (b&j&k)	µg/L	0.2	<0.2	<0.2	<2.0↑	<0.2	<0.2
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1	**1.7**	<0.2↑	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	**110**	**8.5**	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	**130**	**8.3**	<0.1
Naphthalene	µg/L	0.1	<0.1	<0.1	**200**	**17**	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
2-acetylaminofluorene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
7,12-dimethyl-benz(a)anthracene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
3-methylcholanthrene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Aldrin	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Alpha-BHC	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Beta-BHC	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Delta-BHC	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Gamma-BHC (Lindane)	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
p,p-DDD	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
p,p-DDE	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
p,p-DDT	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Dieldrin	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Alpha-endosulfan	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Beta-endosulfan	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Endosulfan sulphate	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Endrin	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Heptachlor	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Heptachlor epoxide	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Isodrin	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Methoxychlor	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Mirex	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Alpha-chlordane	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Gamma-chlordane	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Endrin ketone	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Azinphos-methyl (Guthion)	µg/L	0.2	<0.2	<0.2	<2.0↑	<0.2	<0.2
Bromophos ethyl	µg/L	0.2	<0.2	<0.2	<2.0↑	<0.2	<0.2
Carbophenothion	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Chlorfenvinphos-cis	µg/L	5	<5	<5	<50↑	<5	<5
Chlorfenvinphos-trans	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2	<0.2	<2.0↑	<0.2	<0.2
Chlorpyrifos-methyl	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Co-Ral (Coumaphos)	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Diazinon (Dimpylate)	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Dichlorvos	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1/2-Chloronaphthalene	µg/L	1	<1	<1	<10↑	<1	<1
Demeton-S-methyl	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Dimethoate	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5

Full 8270 SVOC in Water [AN420] Tested: 23/6/2016 (continued)

PARAMETER	UOM	LOR	MW1 WATER - 21/6/2016 SE153857.001	MW2 WATER - 21/6/2016 SE153857.002	MW3 WATER - 21/6/2016 SE153857.003	MW4 WATER - 21/6/2016 SE153857.004	MW5 WATER - 21/6/2016 SE153857.005
Disulfoton (Di-syston)	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
EPN*	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Ethion	µg/L	0.2	<0.2	<0.2	<2.0↑	<0.2	<0.2
Ethoprophos (Ethoprop or Prophos)	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Famphur (Famophos)	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Fenamiphos (Phenamiphos)	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Fenchlorophos (Ronnel)	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Fenitrothion	µg/L	0.2	<0.2	<0.2	<2.0↑	<0.2	<0.2
Fenthion	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Malathion (Maldison)	µg/L	0.2	<0.2	<0.2	<2.0↑	<0.2	<0.2
Methidathion	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Mevinphos-cis/trans	µg/L	1	<1	<1	<10↑	<1	<1
o,o,o-triethyl phosphorothioate	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Parathion ethyl (Parathion)	µg/L	0.2	<0.2	<0.2	<2.0↑	<0.2	<0.2
Parathion methyl	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Phorate	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Pirimiphos-ethyl	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Pirimiphos-methyl	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Profenofos	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Prothiophos (Tokuthion)*	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Sulfotepp	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Tetrachlorvinphos (Stirophos)*	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
PCB Congener C28	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
PCB Congener C52	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
PCB Congener C101	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
PCB Congener C118	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
PCB Congener C138	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
PCB Congener C153	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
PCB Congener C180	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
Hexachlorobenzene (HCB)	µg/L	0.1	<0.1	<0.1	<1.0↑	<0.1	<0.1
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,4-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Hexachlorobutadiene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Hexachlorocyclopentadiene	µg/L	2	<2	<2	<20↑	<2	<2
Hexachloroethane	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Hexachloroproprene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Pentachlorobenzene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Pentachloroethane	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,2,3,5 and 1,2,4,5-tetrachlorobenzene	µg/L	1	<1	<1	<10↑	<1	<1
1,2,3,4-tetrachlorobenzene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
1,2,4-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Bis(2-ethylhexyl)phthalate	µg/L	50	<50	<50	<500↑	<50	<50
Bis(2-ethylhexyl)adipate	µg/L	1	<1	<1	<10↑	<1	<1
Butyl benzyl phthalate	µg/L	1	<1	<1	<10↑	<1	<1
Di-n-butyl phthalate	µg/L	10	<10	<10	<100↑	<10	<10
Diethyl phthalate	µg/L	5	<5	<5	<50↑	<5	<5
Dimethyl phthalate	µg/L	1	<1	<1	<10↑	<1	<1
Dioctyl phthalate	µg/L	1	<1	<1	<10↑	<1	<1
Carbofuran	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Carbaryl	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Trifluralin	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
N-nitroso-di-n-butylamine (NDBA)	µg/L	1	<1	<1	<10↑	<1	<1
N-nitroso-diethylamine (NDEA)	µg/L	1	<1	<1	<10↑	<1	<1
N-nitroso-di-n-propylamine (NDPA)	µg/L	1	<1	<1	<10↑	<1	<1
N-nitroso-morpholine (NMOR)	µg/L	1	<1	<1	<10↑	<1	<1

Full 8270 SVOC in Water [AN420] Tested: 23/6/2016 (continued)

PARAMETER	UOM	LOR	MW1 WATER - 21/6/2016 SE153857.001	MW2 WATER - 21/6/2016 SE153857.002	MW3 WATER - 21/6/2016 SE153857.003	MW4 WATER - 21/6/2016 SE153857.004	MW5 WATER - 21/6/2016 SE153857.005
N-nitroso-piperidine (NPIP)	µg/L	1	<1	<1	<10↑	<1	<1
N-nitroso-pyrrolidine (NPYR)	µg/L	1	<1	<1	<10↑	<1	<1
4-amino biphenyl	µg/L	1	<1	<1	<10↑	<1	<1
Acetophenone	µg/L	1	<1	<1	<10↑	<1	<1
1,3-dinitrobenzene	µg/L	1	<1	<1	<10↑	<1	<1
2,4-dinitrotoluene	µg/L	1	<1	<1	<10↑	<1	<1
2,6-dinitrotoluene	µg/L	1	<1	<1	<10↑	<1	<1
Isophorone	µg/L	1	<1	<1	<10↑	<1	<1
Nitrobenzene	µg/L	1	<1	<1	<10↑	<1	<1
p-(dimethylamino) azobenzene	µg/L	1	<1	<1	<10↑	<1	<1
Phenacetin	µg/L	1	<1	<1	<10↑	<1	<1
Pentachloronitrobenzene (quintozene)	µg/L	1	<1	<1	<10↑	<1	<1
Aniline	µg/L	5	<5	<5	<50↑	<5	<5
4-chloroaniline	µg/L	1	<1	<1	<10↑	<1	<1
2-nitroaniline	µg/L	1	<1	<1	<10↑	<1	<1
3-nitroaniline	µg/L	1	<1	<1	<10↑	<1	<1
4-nitroaniline	µg/L	1	<1	<1	<10↑	<1	<1
Diphenylamine	µg/L	1	<1	<1	<10↑	<1	<1
o-Toluidine	µg/L	1	<1	<1	<10↑	<1	<1
5-nitro-o-toluidine	µg/L	1	<1	<1	<10↑	<1	<1
1-naphthylamine	µg/L	2	<2	<2	<20↑	<2	<2
2-naphthylamine	µg/L	2	<2	<2	<20↑	<2	<2
Bis(2-chloroethoxy) methane	µg/L	1	<1	<1	<10↑	<1	<1
Bis(2-chloroethyl) ether	µg/L	1	<1	<1	<10↑	<1	<1
Bis(2-chloroisopropyl) ether	µg/L	1	<1	<1	<10↑	<1	<1
4-chlorophenyl phenyl ether	µg/L	1	<1	<1	<10↑	<1	<1
4-bromophenyl phenyl ether	µg/L	1	<1	<1	<10↑	<1	<1
Methyl methanesulfonate	µg/L	1	<1	<1	<10↑	<1	<1
Ethyl methanesulfonate	µg/L	1	<1	<1	<10↑	<1	<1
Dibenzofuran	µg/L	1	<1	<1	<10↑	<1	<1
Benzyl alcohol	µg/L	1	<1	<1	<10↑	<1	<1
Safrole	µg/L	1	<1	<1	<10↑	<1	<1
Isosafrole Isomer 1	µg/L	1	<1	<1	<10↑	<1	<1
Isosafrole Isomer 2	µg/L	1	<1	<1	<10↑	<1	<1
1,4-naphthoquinone	µg/L	1	<1	<1	<10↑	<1	<1
Thionazin	µg/L	1	<1	<1	<10↑	<1	<1
3/4-methyl phenol (m/p-cresol)	µg/L	1	<1	<1	<10↑	<1	<1
2-methyl phenol (o-cresol)	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
2,6-dichlorophenol	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
2,3,4,6 and 2,3,5,6-tetrachlorophenol	µg/L	1	<1	<1	<10↑	<1	<1
2,4,5-trichlorophenol	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
4-chloro-3-methylphenol	µg/L	2	<2	<2	<20↑	<2	<2
2-chlorophenol	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
2,4-dichlorophenol	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
2,4-dimethylphenol	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
2-nitrophenol	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Phenol	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
2,4,6-trichlorophenol	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
Pentachlorophenol	µg/L	0.5	<0.5	<0.5	<5.0↑	<0.5	<0.5
4-nitrophenol	µg/L	1	<1	<1	<10↑	<1	<1

Full 8270 SVOC in Water [AN420] Tested: 23/6/2016 (continued)

PARAMETER	UOM	LOR	QC100 WATER - 21/6/2016 SE153857.006
Acenaphthene	µg/L	0.1	<0.3 ↑
Acenaphthylene	µg/L	0.1	<0.1
Anthracene	µg/L	0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1
Total Benzofluoranthenes (b&j&k)	µg/L	0.2	<0.2
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1
Chrysene	µg/L	0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1
Fluorene	µg/L	0.1	<0.2 ↑
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
1-methylnaphthalene	µg/L	0.1	**10**
2-methylnaphthalene	µg/L	0.1	**8.9**
Naphthalene	µg/L	0.1	**19**
Phenanthrene	µg/L	0.1	<0.1
Pyrene	µg/L	0.1	<0.1
2-acetylaminofluorene	µg/L	0.5	<0.5
7,12-dimethyl-benz(a)anthracene	µg/L	0.5	<0.5
3-methylcholanthrene	µg/L	0.5	<0.5
Aldrin	µg/L	0.1	<0.1
Alpha-BHC	µg/L	0.1	<0.1
Beta-BHC	µg/L	0.1	<0.1
Delta-BHC	µg/L	0.1	<0.1
Gamma-BHC (Lindane)	µg/L	0.1	<0.1
p,p-DDD	µg/L	0.1	<0.1
p,p-DDE	µg/L	0.1	<0.1
p,p-DDT	µg/L	0.1	<0.1
Dieldrin	µg/L	0.1	<0.1
Alpha-endosulfan	µg/L	0.1	<0.1
Beta-endosulfan	µg/L	0.1	<0.1
Endosulfan sulphate	µg/L	0.1	<0.1
Endrin	µg/L	0.1	<0.1
Heptachlor	µg/L	0.1	<0.1
Heptachlor epoxide	µg/L	0.1	<0.1
Isodrin	µg/L	0.1	<0.1
Methoxychlor	µg/L	0.1	<0.1
Mirex	µg/L	0.1	<0.1
Alpha-chlordane	µg/L	0.1	<0.1
Gamma-chlordane	µg/L	0.1	<0.1
Endrin ketone	µg/L	0.1	<0.1
Azinphos-methyl (Guthion)	µg/L	0.2	<0.2
Bromophos ethyl	µg/L	0.2	<0.2
Carbophenothion	µg/L	0.5	<0.5
Chlorfenvinphos-cis	µg/L	5	<5
Chlorfenvinphos-trans	µg/L	0.5	<0.5
Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2
Chlorpyrifos-methyl	µg/L	0.5	<0.5
Co-Ral (Coumaphos)	µg/L	0.5	<0.5
Diazinon (Dimpylate)	µg/L	0.5	<0.5
Dichlorvos	µg/L	0.5	<0.5
1/2-Chloronaphthalene	µg/L	1	<1
Demeton-S-methyl	µg/L	0.5	<0.5
Dimethoate	µg/L	0.5	<0.5

Full 8270 SVOC in Water [AN420] Tested: 23/6/2016 (continued)

PARAMETER	UOM	LOR	QC100 WATER - 21/6/2016 SE153857.006
Disulfoton (Di-syston)	µg/L	0.5	<0.5
EPN*	µg/L	0.5	<0.5
Ethion	µg/L	0.2	<0.2
Ethoprophos (Ethoprop or Prophos)	µg/L	0.5	<0.5
Famphur (Famophos)	µg/L	0.5	<0.5
Fenamiphos (Phenamiphos)	µg/L	0.5	<0.5
Fenchlorophos (Ronnel)	µg/L	0.5	<0.5
Fenitrothion	µg/L	0.2	<0.2
Fenthion	µg/L	0.5	<0.5
Malathion (Maldison)	µg/L	0.2	<0.2
Methidathion	µg/L	0.5	<0.5
Mevinphos-cis/trans	µg/L	1	<1
o,o,o-triethyl phosphorothioate	µg/L	0.5	<0.5
Parathion ethyl (Parathion)	µg/L	0.2	<0.2
Parathion methyl	µg/L	0.5	<0.5
Phorate	µg/L	0.5	<0.5
Pirimiphos-ethyl	µg/L	0.5	<0.5
Pirimiphos-methyl	µg/L	0.5	<0.5
Profenofos	µg/L	0.5	<0.5
Prothiophos (Tokuthion)*	µg/L	0.5	<0.5
Sulfotepp	µg/L	0.5	<0.5
Tetrachlorvinphos (Stirophos)*	µg/L	0.5	<0.5
PCB Congener C28	µg/L	0.1	<0.1
PCB Congener C52	µg/L	0.1	<0.1
PCB Congener C101	µg/L	0.1	<0.1
PCB Congener C118	µg/L	0.1	<0.1
PCB Congener C138	µg/L	0.1	<0.1
PCB Congener C153	µg/L	0.1	<0.1
PCB Congener C180	µg/L	0.1	<0.1
Hexachlorobenzene (HCB)	µg/L	0.1	<0.1
1,2-dichlorobenzene	µg/L	0.5	<0.5
1,3-dichlorobenzene	µg/L	0.5	<0.5
1,4-dichlorobenzene	µg/L	0.5	<0.5
Hexachlorobutadiene	µg/L	0.5	<0.5
Hexachlorocyclopentadiene	µg/L	2	<2
Hexachloroethane	µg/L	0.5	<0.5
Hexachloroproprene	µg/L	0.5	<0.5
Pentachlorobenzene	µg/L	0.5	<0.5
Pentachloroethane	µg/L	0.5	<0.5
1,2,3,5 and 1,2,4,5-tetrachlorobenzene	µg/L	1	<1
1,2,3,4-tetrachlorobenzene	µg/L	0.5	<0.5
1,2,4-trichlorobenzene	µg/L	0.5	<0.5
Bis(2-ethylhexyl)phthalate	µg/L	50	<50
Bis(2-ethylhexyl)adipate	µg/L	1	<1
Butyl benzyl phthalate	µg/L	1	<1
Di-n-butyl phthalate	µg/L	10	<10
Diethyl phthalate	µg/L	5	<5
Dimethyl phthalate	µg/L	1	<1
Dioctyl phthalate	µg/L	1	<1
Carbofuran	µg/L	0.5	<0.5
Carbaryl	µg/L	0.5	<0.5
Trifluralin	µg/L	0.5	<0.5
N-nitroso-di-n-butylamine (NDBA)	µg/L	1	<1
N-nitroso-diethylamine (NDEA)	µg/L	1	<1
N-nitroso-di-n-propylamine (NDPA)	µg/L	1	<1
N-nitroso-morpholine (NMOR)	µg/L	1	<1

Full 8270 SVOC in Water [AN420] Tested: 23/6/2016 (continued)

PARAMETER	UOM	LOR	QC100 WATER - 21/6/2016 SE153857.006
N-nitroso-piperidine (NPIP)	µg/L	1	<1
N-nitroso-pyrrolidine (NPYR)	µg/L	1	<1
4-amino biphenyl	µg/L	1	<1
Acetophenone	µg/L	1	<1
1,3-dinitrobenzene	µg/L	1	<1
2,4-dinitrotoluene	µg/L	1	<1
2,6-dinitrotoluene	µg/L	1	<1
Isophorone	µg/L	1	<1
Nitrobenzene	µg/L	1	<1
p-(dimethylamino) azobenzene	µg/L	1	<1
Phenacetin	µg/L	1	<1
Pentachloronitrobenzene (quintozene)	µg/L	1	<1
Aniline	µg/L	5	<5
4-chloroaniline	µg/L	1	<1
2-nitroaniline	µg/L	1	<1
3-nitroaniline	µg/L	1	<1
4-nitroaniline	µg/L	1	<1
Diphenylamine	µg/L	1	<1
o-Toluidine	µg/L	1	<1
5-nitro-o-toluidine	µg/L	1	<1
1-naphthylamine	µg/L	2	<2
2-naphthylamine	µg/L	2	<2
Bis(2-chloroethoxy) methane	µg/L	1	<1
Bis(2-chloroethyl) ether	µg/L	1	<1
Bis(2-chloroisopropyl) ether	µg/L	1	<1
4-chlorophenyl phenyl ether	µg/L	1	<1
4-bromophenyl phenyl ether	µg/L	1	<1
Methyl methanesulfonate	µg/L	1	<1
Ethyl methanesulfonate	µg/L	1	<1
Dibenzofuran	µg/L	1	<1
Benzyl alcohol	µg/L	1	<1
Safrole	µg/L	1	<1
Isosafrole Isomer 1	µg/L	1	<1
Isosafrole Isomer 2	µg/L	1	<1
1,4-naphthoquinone	µg/L	1	<1
Thionazin	µg/L	1	<1
3/4-methyl phenol (m/p-cresol)	µg/L	1	<1
2-methyl phenol (o-cresol)	µg/L	0.5	<0.5
2,6-dichlorophenol	µg/L	0.5	<0.5
2,3,4,6 and 2,3,5,6-tetrachlorophenol	µg/L	1	<1
2,4,5-trichlorophenol	µg/L	0.5	<0.5
4-chloro-3-methylphenol	µg/L	2	<2
2-chlorophenol	µg/L	0.5	<0.5
2,4-dichlorophenol	µg/L	0.5	<0.5
2,4-dimethylphenol	µg/L	0.5	<0.5
2-nitrophenol	µg/L	0.5	<0.5
Phenol	µg/L	0.5	<0.5
2,4,6-trichlorophenol	µg/L	0.5	<0.5
Pentachlorophenol	µg/L	0.5	<0.5
4-nitrophenol	µg/L	1	<1

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 23/6/2016

PARAMETER	UOM	LOR	MW1 WATER - 21/6/2016 SE153857.001	MW2 WATER - 21/6/2016 SE153857.002	MW3 WATER - 21/6/2016 SE153857.003	MW4 WATER - 21/6/2016 SE153857.004	MW5 WATER - 21/6/2016 SE153857.005
Arsenic, As	µg/L	1	<1	<1	2	1	<1
Cadmium, Cd	µg/L	0.1	<0.1	0.2	<0.1	<0.1	0.3
Chromium, Cr	µg/L	1	<1	<1	<1	<1	<1
Copper, Cu	µg/L	1	<1	<1	<1	<1	<1
Lead, Pb	µg/L	1	<1	<1	<1	<1	<1
Nickel, Ni	µg/L	1	3	6	2	14	12
Zinc, Zn	µg/L	5	7	11	8	21	16

PARAMETER	UOM	LOR	QC100 WATER - 21/6/2016 SE153857.006	RB100 WATER - 21/6/2016 SE153857.007	FB100 WATER - 21/6/2016 SE153857.008
Arsenic, As	µg/L	1	1	<1	<1
Cadmium, Cd	µg/L	0.1	<0.1	<0.1	<0.1
Chromium, Cr	µg/L	1	<1	<1	<1
Copper, Cu	µg/L	1	<1	<1	<1
Lead, Pb	µg/L	1	<1	<1	<1
Nickel, Ni	µg/L	1	14	<1	<1
Zinc, Zn	µg/L	5	20	<5	<5

Mercury (dissolved) in Water [AN311/AN312] Tested: 28/6/2016

PARAMETER	UOM	LOR	MW1 WATER - 21/6/2016 SE153857.001	MW2 WATER - 21/6/2016 SE153857.002	MW3 WATER - 21/6/2016 SE153857.003	MW4 WATER - 21/6/2016 SE153857.004	MW5 WATER - 21/6/2016 SE153857.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

PARAMETER	UOM	LOR	QC100 WATER - 21/6/2016 SE153857.006	RB100 WATER - 21/6/2016 SE153857.007	FB100 WATER - 21/6/2016 SE153857.008
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
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.
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 NEPM 1999 (2013), >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, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (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).
AN433	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.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

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/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf